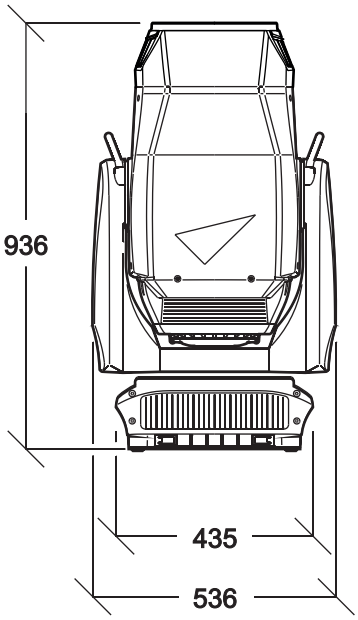
MAC III™ AirFX

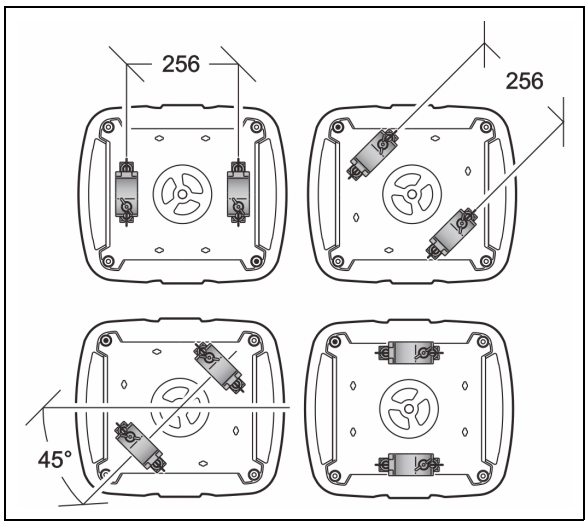
USER MANUAL

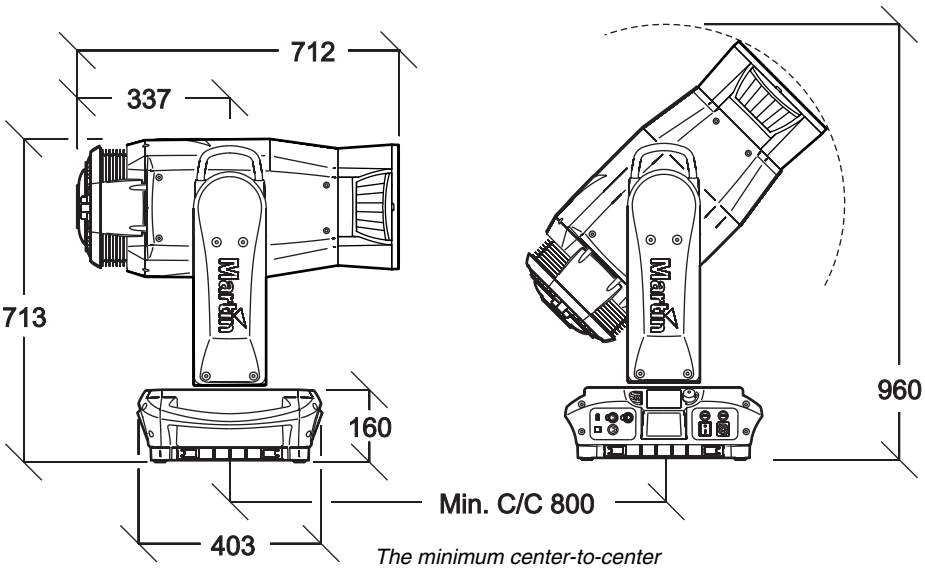
Martin®

Dimensions

All measurements are expressed in millimeters







The minimum center-to-center distance can be reduced if pan and limits are set via the control menus

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Safety Information

WARNING!
Read the safety precautions in this section before installing, powering, operating or servicing this product.

The following symbols are used to identify important safety information on the product and in this manual:

DANGER! Safety hazard. Risk of severe injury or death.

DANGER! Refer to manual before installing, powering or servicing.

DANGER! Hazardous voltage. Risk of severe or lethal electric shock.

Warning! Fire hazard.

Warning! Burn hazard. Hot surface. Do not touch.

Warning! Risk of eye injury. Safety glasses must be worn.

Warning! Risk of hand injury. Safety gloves must be worn.

Warning! Risk Group 3 (high risk) product according to EN 62471. Do not view the light output with optical instruments or any device that may concentrate the beam.

This product is for professional use only. It is not for household use.

This product presents risks of severe injury or death due to fire and burn hazards, electric shock, lamp explosion and falls.

Read this manual before installing, powering or servicing the fixture, follow the safety precautions listed below and observe all warnings in this manual and printed on the fixture.

If you have questions about how to operate the fixture safely, please contact your Martin supplier or call the Martin 24-hour service hotline on +45 8740 0000, or in the USA on 1-888-tech-180.

PROTECTION FROM ELECTRIC SHOCK

- Disconnect the fixture from AC power before removing or installing any cover or part – including the lamp and fuses – and when not in use.
- Ensure that the fixture is electrically connected to ground (earth).
- Use only a source of AC power that complies with local building and electrical codes and has both overload and ground-fault (earth-fault) protection.
- The power input cable must be rated 20 A, hard usage type and heat-resistant to 90° C (194° F) minimum. It must have three conductors and an outer cable diameter of 5 - 15 mm (0.2 - 0.6 in.). In North America the cable must be 12 AWG minimum conductor size, SJT or better. In the EU the cable must be 2.5 mm², HAR compliant.
- Before using the fixture, check that all power distribution equipment and cables are in perfect condition and rated for the current requirements of all connected devices.
- Isolate the fixture from power immediately if the power cable or power plug are in any way damaged, defective or wet, or if they show signs of overheating.
- Do not expose the fixture to rain or moisture.
- Refer any service operation not described in this manual to an authorized Martin Service partner.

LAMP SAFETY

- Prolonged exposure to an unshielded discharge lamp can cause eye and skin burns. Do not stare directly into the light output. Never look at an exposed lamp while it is lit.
- Do not operate the fixture with missing or damaged covers, shields, lenses or ultraviolet screens.
- A hot discharge lamp is under pressure and can explode without warning. Allow the fixture to cool for at least 2 hours 45 minutes and protect yourself with safety glasses and gloves before handling a lamp or servicing the fixture internals.
- Replace the lamp immediately if it becomes visually deformed, damaged or in any way defective
- Monitor hours of lamp use and lamp intensity and replace the lamp when it reaches the limit of its service life as specified in this manual or by the lamp manufacturer.
- Install only an approved lamp.
- If the quartz envelope of a discharge lamp is broken, the lamp releases a small quantity of mercury and other toxic gases. If a discharge lamp explodes in a confined area, evacuate the area and ventilate it thoroughly. Wear nitrite gloves when handling a broken discharge lamp. Treat broken or used discharge lamps as hazardous waste and send to a specialist for disposal.

PROTECTION FROM BURNS AND FIRE

- The exterior of the fixture becomes very hot – up to 170° C (338° F) – during use. Avoid contact by persons and materials. Allow the fixture to cool for at least 2 hours 45 minutes before handling.
- Keep all combustible materials (e.g. fabric, wood, paper) at least 0.2 m (8 in.) away from the fixture. Keep flammable materials well away from the fixture.
- Provide a minimum clearance of 0.1 m (4 in.) around fans and air vents.
- Do not illuminate surfaces within 2.5 m (100 in.) of the fixture.
- Position or shade the head so that the lens does not face the sun at any time during daylight hours. The lens can focus the sun's rays inside the fixture, creating a potential fire hazard.
- Do not operate the fixture if the ambient temperature (Ta) exceeds 40° C (104° F).
- Do not modify the fixture in any way not described in this manual or install other than genuine Martin parts. Do not stick filters, masks or other materials onto any lens or other optical component. Use only Martin-approved accessories to mask or modify the light beam.
- Do not attempt to bypass a thermostatic switch or fuse. Replace defective fuses with ones of the specified type and rating only.

PROTECTION FROM INJURY DUE TO FALLS

- Do not lift or carry the fixture alone.
- Use two evenly spaced clamps to suspend the fixture from rigging structures. Do not use only one clamp.
- When clamping the fixture to a truss or other supporting structure at any other angle than with the yoke hanging vertically downwards, use two half-coupler clamps. Do not use G-clamps, quick-trigger clamps or any other type of clamp that does not completely encircle the supporting structure when fastened.
- When suspending the fixture, ensure that the supporting structure and all hardware used can hold at least 10 times the weight of all devices suspended from them.
- Do not use the handles in the base or the handles on the top of the yoke for hoisting or secondary attachment.
- Install as described in this manual a secondary attachment such as a safety cable that is approved by an official body such as TÜV as a safety attachment for the weight of all the fixtures it secures. The safety cable must comply with EN 60598-2-17 Section 17.6.6 and be capable of bearing a static suspended load ten times the weight of the fixture.
- Check that all external covers and rigging hardware are securely fastened.
- Block access below the work area and work from a stable platform whenever installing, servicing or moving the fixture.

Introduction

Thank you for selecting the Martin™ MAC III AirFX™. This moving-head spotlight features:

- CMY color mixing plus color wheel
- Variable CTO
- 1:5 linear zoom with no lumen drop or internal lens changes
- Zoom with linked focus on all aerial effects
- Fat beam
- 9-inch clear, precision PC lens with less spill than micro-Fresnels
- Optional Fresnel lens
- AirFX wheel with 4 interchangeable rotating mid-air effects with 16-bit position indexing
- Fade in/out wash effect
- Full-range mechanical dimmer with four dimming curve options, plus mechanical shutter
- Iris
- Beam, mid-air and wash effects in one luminaire
- 1500 watt high-output discharge lamp with semi-hot restrike (< 90 seconds)
- Backlit graphic display and battery power (mains power not required for fixture setup)
- 540° of pan and 268° of tilt with user-settable pan/tilt limits
- Electronic “flicker-free” ballast and auto-sensing switch-mode power supply.

For the latest firmware updates, documentation, and other information about this and all Martin Professional products, please visit the Martin website at http://www.martin.com

Comments or suggestions regarding this document may be e-mailed to service@martin.dk or posted to: Technical Documentation, Martin Professional A/S, Olof Palmes Allé 18, DK-8200 Aarhus N, Denmark.

Unpacking

The MAC III AirFX is packaged in either a cardboard box or a flightcase that is designed to protect the product during shipment. The following items are included:

- 1500 W discharge lamp (installed)
- Two 16 AT fuses (installed)
- 2 omega brackets for clamp attachment
- This user manual

Using for the first time

Before applying power to the fixture:

- Carefully review the safety information starting on page 5.
- Prepare a power cable (see “Power connection” on page 8).
- Check that the tilt lock is released (see “Tilt lock” on page 31).
- Check that the base is fastened securely so that the torque reaction when the head is panned does not cause the fixture to move.

When powered up, check lamp alignment as described on page 11.

Packing

Important! ***Release the tilt lock before repacking in the flightcase.***

The tilt lock must be released during transportation in the MAC III flightcase.

AC power

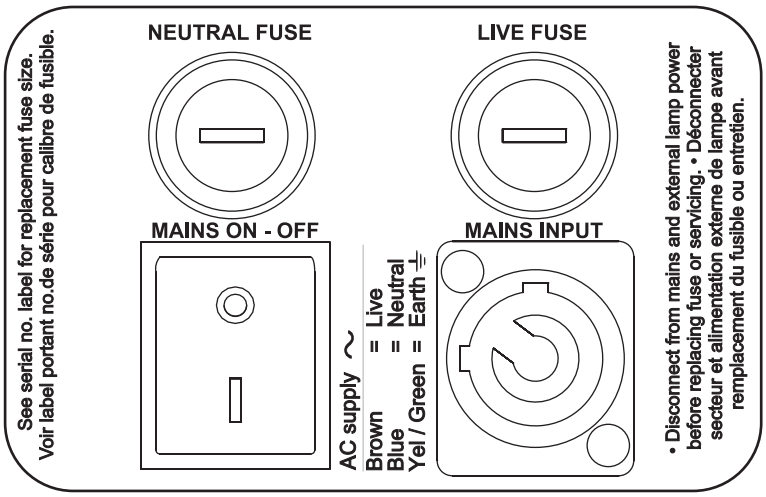
Warning! For protection from electric shock, the fixture must be grounded (earthed). The AC mains supply must be fitted with a fuse or circuit breaker and ground-fault (earth-fault) protection.

Power input and primary fuses

The MAC III AirFX features an auto-sensing switch-mode power supply that automatically adapts to 200-240 V (nominal) AC power at 50 or 60 Hz. It is protected by two 16 A slow-blow primary fuses, one for the live conductor and one for the neutral conductor.

To install fuses:

1. Disconnect the fixture from AC power.
2. Use a flat-headed screwdriver to open the two main fuseholders, located above the power on/off switch and mains input socket.
3. Install one 16 AT fuse in each fuseholder.
4. Reinstall the fuseholders before reapplying power.


NEUTRAL FUSE
LIVE FUSE
See serial no. label for replacement fuse size.
Voir label portant no.de série pour calibre de fusible.
MAINS ON - OFF
MAINS INPUT
AC supply ~
Brown = Live
Blue = Neutral
Yel / Green = Earth ⏚
• Disconnect from mains and external lamp power before replacing fuse or servicing. • Déconnecter secteur et alimentation externe de lampe avant remplacement du fusible ou entretien.

Power connection

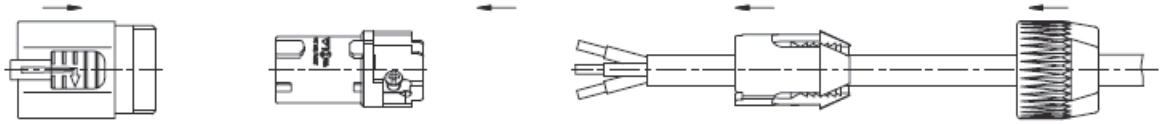
Important! ***Connect the MAC III AirFX directly to AC power. Do not connect it to a dimmer system; doing so may damage the fixture.***

The MAC III AirFX requires a power input cable with a Neutrik PowerCon NAC3FCA cable connector for AC mains power input. The cable must meet the requirements listed under “Protection from electric shock” on page 5.

Martin™ can supply either a suitable 3 m (9.8 ft.) power cable with PowerCon input connector installed or the PowerCon input connector without a cable (see “Accessories” on page 59).

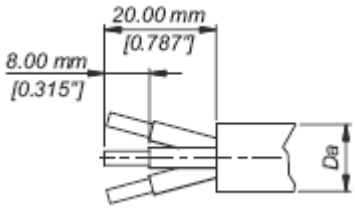
If you need to install a PowerCon connector on the power cable, see the next section.

Installing a power input connector

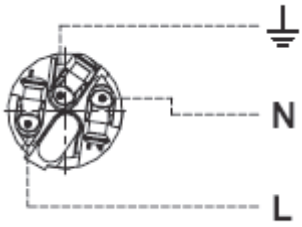


To install a Neutrik PowerCon NAC3FCA input connector on a power cable, see illustrations above and right:

1. Slide the bushing over the cable.
2. Slide the white chuck over cables with a diameter (D_a) of 5 - 10 mm (0.2 - 0.4 in.), or the black chuck over cables with a diameter of 10 - 15 mm (0.4 - 0.6 in.).
3. Prepare the end of the cable by stripping 20 mm (0.8 in.) of the cable's outer jacket.
4. Strip 8 mm (1/3 in.) of insulation from the end of each wire.
5. Use a small flathead screwdriver to fasten the wires into the connector terminals in the insert as follows:
   - live wire into the terminal marked **L**
   - neutral wire into the terminal marked **N**
   - ground (earth) wire into the terminal marked ⏚.
6. Line up the raised key in the insert with the keyway in the housing, then push the insert and chuck into the housing.
7. Fasten the bushing to the housing using a wrench, applying a torque of 2.5 Nm (1.8 lb.-ft).



Cable end



Terminals

Illustrations used by kind permission of Neutrik AG

Installing a cord cap (mains plug)

If you install a cord cap (mains plug) on the power cable to allow connection to power outlets, install a grounding-type (earthed) plug, following the plug manufacturer's instructions. Table 1 shows some possible mains power pin and wire color identification schemes; if pins are not clearly identified, or if you have any doubts about proper installation, consult a qualified electrician.

Wire color (USA)	Wire color (EU)	Pin	Symbol	Screw (US)
black	brown	live	L	yellow or brass
white	blue	neutral	N	silver
green	yellow/green	ground (earth)	⏚ or ⏚	green

Table 1: Cord cap connections

Applying power

To apply power, first check that the tilt lock is released and then set the power switch on the base to the "I" position.

Lamp

About the discharge lamp

The MAC III AirFX is designed for use with an Osram Lok-it HTI 1500W/60/P50 - 7mm lamp. This highly efficient single-ended discharge source provides a color temperature of 6000 K, a color rendering index greater than 90, an average service life of 750 hours and semi-hot restrike, meaning that a hot lamp is ready to strike again after 90 seconds.

Lamp power is automatically reduced to approximately 800 W after 10 seconds when the fixture is blacked out in order to reduce cooling fan activity and power consumption. The lamp returns to 1500 W as soon as the dimmer and/or shutter are opened.

Warning! ***Installing any other lamp may create a safety hazard or damage the fixture!***

To reduce the risk of explosion, replace the lamp when it reaches the limit of its average service life, i.e. when usage reaches 750 hours. Never exceed the lamp's average service life by more than 10%. To read lamp hours in the fixture's display, refer to the section on lamp hours readouts on page 19. Replace the lamp immediately if it is deformed or in any way defective.

For maximum service life, avoid powering the lamp off until it has warmed up for at least 5 minutes.

Lamp replacement

Warning! Wear safety glasses and gloves when handling lamps. The clear lamp bulb is integral with the ceramic lamp base. Do not try to separate the bulb from the base.

Important! The lamp can be a stiff fit in its holder. Twist the lamp base a full 45° clockwise when installing to ensure that the lamp contacts are fully engaged.

Replacement lamps are available from your Martin dealer requesting P/N 97010348.

The clear bulb must be perfectly clean. Do not touch it with your fingers. Clean the lamp with an alcohol wipe and polish it with a dry cloth before installing, particularly if you accidentally touch the bulb.

To replace the lamp:

1. Disconnect the fixture from power and allow it to cool for at least 2 hours 45 minutes.
2. Lock the head.
3. Release the screw on the lamp access cover and open the cover.
4. Grasp the ceramic lamp base, twist it 45° counterclockwise and withdraw the lamp from the fixture as shown in Figure 2.
5. The lamp base has two metal contacts, one narrow and one wide, that fit into corresponding narrow and wide slots in the lampholder. Line up the contacts on the replacement lamp's base with the corresponding slots in the lampholder, slide the lamp into the fixture so that the contacts are fully engaged in the slots, and then twist the lamp base a full 45° clockwise until it locks into position with a noticeable click. The lamp is a stiff fit and trying to strike a lamp that is not correctly installed can cause damage that is not covered by the product warranty, so ensure that the lamp is correctly locked into position.
6. Close the lamp access cover and tighten the screw to secure the cover before reapplying power.
7. After installing a new lamp, reset the lamp hour counter (see the section on lamp hours readouts on page 19).

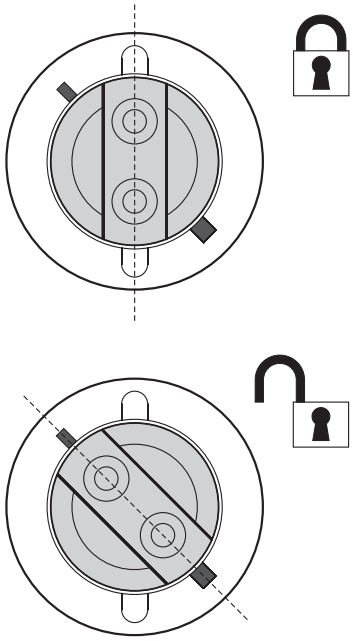


Figure 2: Lamp removal / refitting

Lamp adjustment

Warning! Adjust the lamp with the fixture cool. The fixture may become hot during adjustment, so wear heat-resistant safety gloves.

As well as being undesirable for aesthetic reasons, a significant hot-spot in the beam will focus extra heat onto optical components and may cause damage that is not covered by the product warranty.

After fitting a new lamp, adjustment may be required to obtain an even beam.

To adjust the lamp:

1. If the fixture has been in use, allow it to cool for at least 2 hours 45 minutes to avoid the danger of burns, and wear heat-resistant safety gloves.
2. Apply power, allow the fixture to reset, then set zoom to narrow, turn on the lamp and open the mechanical shutter.
3. Aim the fixture at an even surface and make sure no further commands can be sent by DMX.
4. See Figure 3. Screw the three lamp adjustment screws in or out to obtain the most even beam.

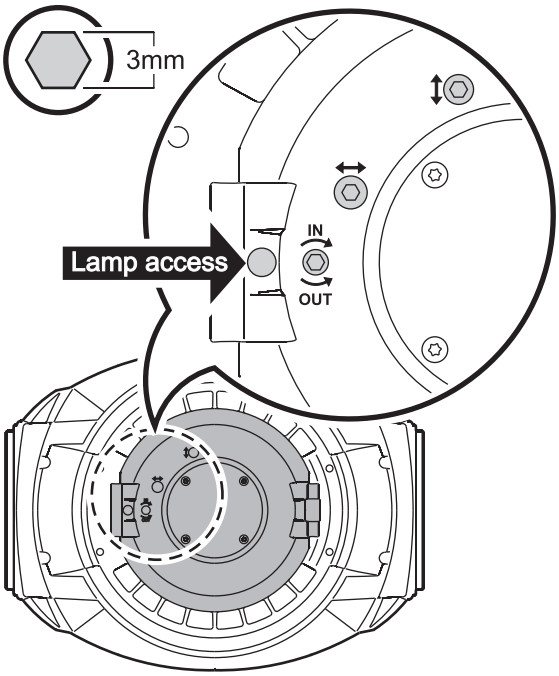


Figure 3: Lamp adjustment screws

DMX data link

The MAC III AirFX has 5-pin locking XLR sockets for DMX and RDM input and output. The default pin-out on both sockets is:

- pin 1 to shield
- pin 2 to DMX and RDM data 1 cold (-)
- pin 3 to DMX and RDM data 1 hot (+)

Pins 4 and 5 are not used by the fixture but are bridged between input and output sockets. These pins can therefore be used as a pass-through connection for an additional data signal if required.

Tips for reliable data transmission

- Use shielded twisted-pair cable designed for RS-485 devices: standard microphone cable cannot transmit control data reliably over long runs. 24 AWG cable is suitable for runs up to 300 meters (1000 ft). Heavier gauge cable and/or an amplifier is recommended for longer runs.
- To split the serial link into branches, use a splitter such as the Martin 4-Channel Opto-Isolated RS-485 Splitter/Amplifier.
- Do not overload the link. Up to 32 devices may be connected on a serial link.
- Install a DMX termination plug on the last fixture on the link.

To connect the data link

1. Connect the DMX data output from the controller to the MAC III AirFX's data input (male XLR) socket.
2. Run the data link from the MAC III AirFX's data output (female XLR) socket to the data input of the next fixture.
3. Terminate the data link by connecting a 120 Ohm, 0.25 Watt resistor between the data 1 hot (+) and cold (-) conductors (and between data 2 hot and cold if used) at the data output of the last fixture on the link. If a splitter is used, terminate each branch of the link.

Physical installation

Warning! The MAC III AirFX has a powerful pan motor. The torque reaction when the head is panned suddenly can cause the base to move if the fixture is standing unsecured on a surface. Do not apply power to the MAC III AirFX unless the base is securely fastened to a surface or to rigging hardware.

Warning! Use 2 clamps to rig the fixture. Do not hang the fixture from only one clamp. Lock each clamp with both 1/4-turn fasteners. Fasteners are locked only when turned fully clockwise.

Warning! When suspending the fixture above ground level, secure it against failure of primary attachments by attaching a safety wire that is approved as a safety attachment for the weight of the fixture to the attachment point in the base. Do not use the carrying handles for secondary attachment.

Warning! When clamping the fixture to a truss or other structure at any other angle than with the yoke hanging vertically downwards, use two clamps of half-coupler type. Do not use any type of clamp that does not completely encircle the structure when fastened.

Warning! Position or shade the head so that the lens does not face the sun at any time, even for a few seconds, during daylight hours. The MAC III AirFX's lens can focus the sun's rays inside the fixture, creating a potential fire hazard and causing internal damage.

Important! Do not point the output from other lighting fixtures at the MAC III AirFX from a distance of less than 3 m (10 ft.), as intense illumination can damage the display.

The MAC III AirFX can be fastened to a surface such as a stage or clamped to a truss in any orientation. Clamps must be half-coupler type (see Figure 5) unless the fixture is installed with the yoke hanging vertically downwards. The mounting points allow the clamp brackets to be fastened parallel, perpendicular or at 45° to the front, as shown Figure 4.

Pan and tilt range can be limited via the control panel to allow fixtures to be installed close to each other or to obstacles with no risk of collision (see **PAN/TILT SETTINGS** on page 17).

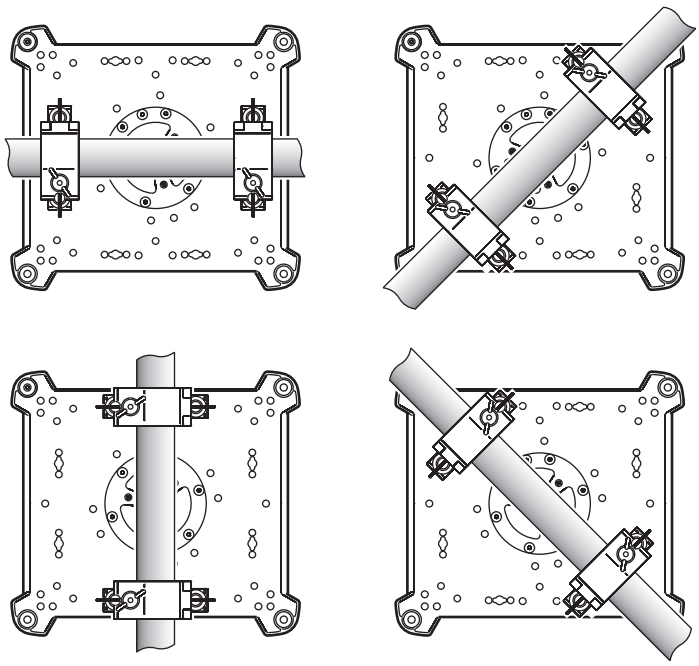
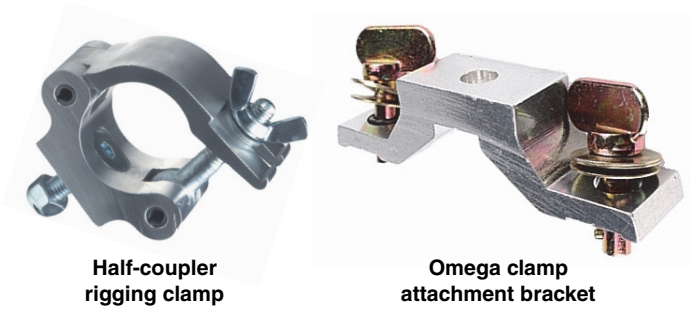


Figure 4: Clamp bracket positions

Clamping the fixture on a truss

1. Check that the rigging clamps are undamaged and can bear at least 10 times the weight of the fixture. Check that the structure can bear at least 10 times the weight of all installed fixtures, clamps, cables, auxiliary equipment, etc.

2. Bolt each clamp securely to a clamp bracket with an M12 bolt (minimum grade 8.8) and lock nut.



Half-coupler rigging clamp

Omega clamp attachment bracket

Figure 5: Martin rigging hardware

3. See Figure 6. Note the position of the arrows on the bottom of the base that indicate the front of the fixture.

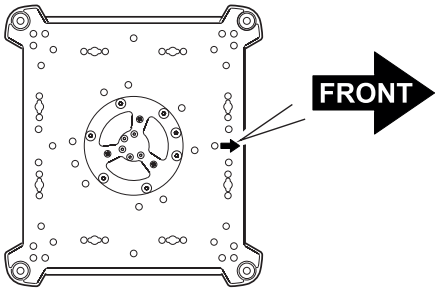


Figure 6: Front of fixture

4. Align a clamp with 2 mounting points in the base. See Figure 7. Insert the fasteners into the base and turn both levers a full 90° clockwise to lock. Install the second clamp.
5. Block access under the work area. Working from a stable platform, hang the fixture on the truss with the arrows marked **FRONT** printed on the base of the fixture facing towards the area to be illuminated. Tighten the rigging clamps.

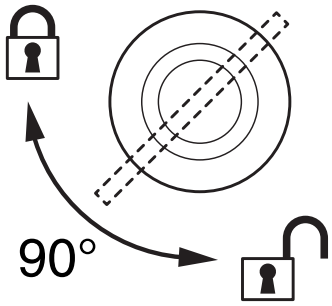


Figure 7: Locking 1/4-turn fasteners

6. See Figure 8. Install a safety wire that is approved as a safety attachment for the weight of the fixture by looping it through the safety attachment wheel on the bottom of the base.
7. Check that the tilt lock is released. Check that there are no combustible materials within 0.2 m (8 in.) or surfaces to be illuminated within 2.5 m (100 in.) of the fixture, and that there are no flammable materials nearby.
8. Check that there is no possibility of heads or yokes colliding with other fixtures. Note that pan and tilt range on the MAC III AirFX can be restricted by setting minimum and maximum limits via the control menus. This feature allows fixtures to be installed closer together or closer to obstacles.
9. Check that other lighting fixtures cannot project light at the MAC III AirFX from a distance of less than 3 m (10 ft.), as intense illumination can damage the MAC III AirFX's display.

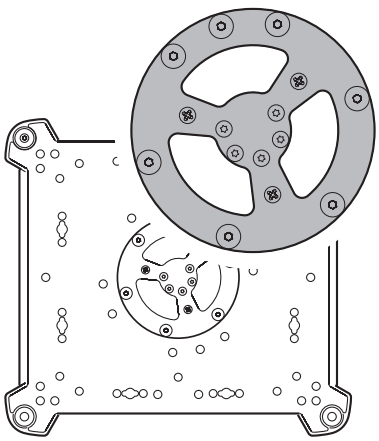


Figure 8: Safety cable attachment point

Control panel operations

You can configure individual fixture settings such as the MAC III AirFX's DMX address, read out data, execute service and view the event log using the fixture's backlit graphic display and control panel. The control menu overview starting on page 48 gives a complete list in table form of the menus and commands available.

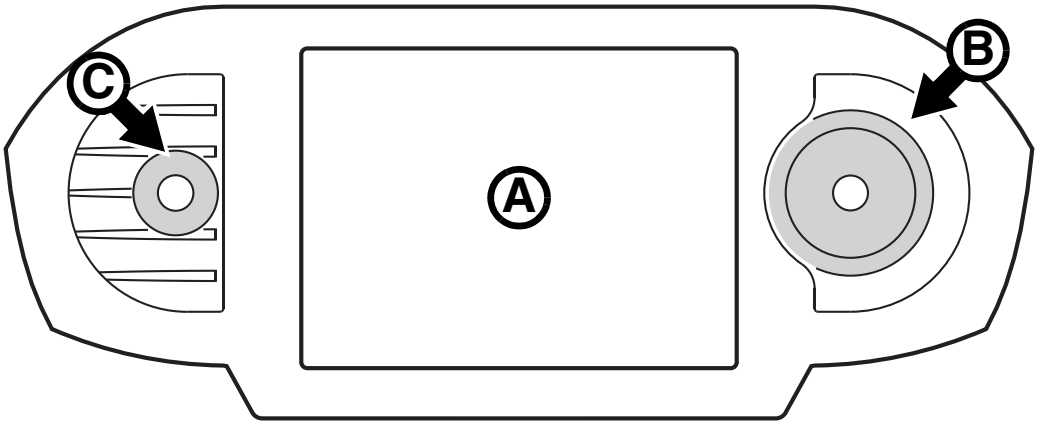


Figure 9: Display and control panel

After a pause while the fixture boots and resets, the DMX address and any status messages (see page 53) appear in the graphic display **A** when the MAC III AirFX is powered on.

Using the control panel

Click (i.e. press once) the jog wheel **B** once to enter the menus. Rotate the jog wheel to scroll up and down menus and click the jog wheel once to make a selection. Rotating the jog wheel faster gives high-speed scrolling.

Once you have made a selection, either click the jog wheel to save it or press the Escape button **C** to cancel. If you save the selection, **Saving...** is displayed for 1 second. If you cancel, the menu returns to the previously saved value. Press the Escape button to step backwards through the menus.

The jog wheel and Escape button continue to function while the **Saving...** message is displayed.

Status LED on jog wheel

An LED in the center of the jog wheel indicates fixture status depending on the color displayed and DMX status depending on whether the LED flashes or lights constantly:

- **GREEN**: All fixture parameters normal.
- **AMBER**: Warning active (service interval exceeded, for example). If **ERROR MODE** is set to **Normal**, the warning message will be shown in display. If **ERROR MODE** is set to **Silent**, the display must be activated with the jog wheel to display the warning message.
- **RED**: Error detected. If **ERROR MODE** is set to **Normal**, the error message will be shown in display. If **ERROR MODE** is set to **Silent**, the display must be activated with the jog wheel to display the error message.
- **FLASHING**: No DMX signal detected.
- **LIGHTS CONSTANTLY**: Valid DMX signal detected.

If an error has been detected and the LED is red when the fixture is powered off, the LED will continue to flash red slowly. This feature allows easy identification of fixtures that require service intervention even if fixtures are disconnected from power.

Martin flightcases for the MAC III AirFX contain a small window through which the status LED is visible.

Battery power

The display and control panel are powered by the MAC III AirFX's onboard battery. This gives access to the most important functions in the control panel – including DMX addressing – when the fixture is not connected to AC power.

To activate the display when the fixture is not connected to power, press the Escape button. The display extinguishes after 10 seconds with no jog wheel activity and the control panel is de-activated after 1 minute with no jog wheel activity. Press the Escape button again to re-activate.

Mains power indicator

When the fixture is connected to AC mains power, a 'battery recharging' icon appears in the display. When the battery is fully charged, the battery icon is replaced a mains plug icon.

Status indicators in display

The status indicators on the right of the display have the following functions:

- **LAMP** lights green when the lamp is powered.
- **ETHERNET** lights green when the MAC III AirFX is correctly connected to an Ethernet network (at the moment there is no provision for direct connection to Ethernet).
- **DMX** lights green when the MAC III AirFX is receiving a valid DMX signal.
- **PAN/TILT** lights yellow when pan/tilt limits have been activated (see page 17) and lights orange when Followspot mode is enabled (see "Followspot mode" on page 25).

Shortcuts pop-up

If you hold the Escape button pressed in for 2 - 3 seconds, a pop-up window with shortcuts to important commands appears. Select a command and click the jog wheel to activate, or press Escape to cancel.

- **RESET** resets the whole fixture
- **LAMP ON/OFF** strikes or douses the lamp.
- **ROTATE DISPLAY** rotates the MAC III AirFX display.
- **FOLLOWSPOT MODE** calls up the followspot menu.
- **EVENT LOG** calls up the event log menu.

Settings stored permanently

The following settings are stored permanently in the fixture memory and are not affected by powering the MAC III AirFX off and on or by updating the fixture software:

- DMX address
- Fixture ID
- All personality settings (pan/tilt and pan/tilt limit, linked zoom/focus, lamp cooling, fan clean mode, dimming curve, DMX lamp off, DMX reset, parameter shortcuts, all display settings, error mode)
- Factory settings
- Fixture info (resettable power-on, lamp-on, lamp strikes, and air filter counters)
- All Service settings (adjust, calibration, firmware)

These settings can be returned to factory defaults using the control menus or via DMX.

DMX address

The DMX address, also known as the start channel, is the first channel used to receive instructions from the controller. For independent control, each fixture must be assigned its own control channels. If you give two MAC III AirFXs the same address, they will behave identically. Address sharing can be useful for diagnostic purposes and symmetrical control, particularly when combined with the inverse pan and tilt options.

DMX addressing is limited to make it impossible to set the DMX address so high that you are left without enough control channels for the fixture in the 512 channels available in one DMX universe.

DMX address setting

To set the fixture's DMX address:

1. Press the jog wheel to enter the main menu.
2. Rotate the jog wheel to scroll down to **DMX ADDRESS**, then click the jog button. Rotate the jog wheel to scroll to the desired address and click the jog button to save.
3. Press the Escape button to step back to the main menu.

Fixture ID

The MAC III AirFX lets you set a four-digit ID number to ease identification of the fixtures in an installation. When a fixture is powered on for the first time, it displays its DMX address by default. As soon as you set an ID number other than **0000** in **FIXTURE ID**, the MAC III AirFX will display this ID number by default.

To let you distinguish easily between ID numbers and DMX addresses, the ID number is always displayed with four digits and DMX address is displayed with between one and three digits.

Personality – tailoring performance

The MAC III AirFX provides several options that let you optimize the fixture for different applications in the **PERSONALITY** menu:

- The **PAN/TILT SETTINGS** menu gives three options:
  - **PAN/TILT CONTROL** lets you swap and/or invert pan and tilt and activate the pan and tilt limits you define in **PAN & TILT LIMIT SETTINGS** (see below).
  - **MOVE ON RESET** lets you choose if you want pan and tilt to move when the fixture resets or not. Pan and tilt movement can be a useful visual sign that fixtures in a rig are powering up and resetting.
  - **PAN & TILT LIMIT SETTINGS** lets you define minimum and maximum limits for both pan and tilt angles, making it possible to install fixtures close to obstacles such as other fixtures with no risk of collision. Settings are based on the following principles:

    Pan range for pan limit purposes runs from 0° to 360° clockwise as seen looking at the fixture from the bottom of the base towards the yoke, as if the fixture was hanging downwards underneath you.

    Tilt range is +134° and -134° either side of 0°, which is the head straight up position with the front glass pointed directly away from the base.

    The light beam points fully forward (the front of the fixture is indicated by the arrows printed under the base) when pan is set to 90° or 450° and tilt is set to +90°.

    Selecting **Inside** keeps pan and tilt inside the limits you set – i.e. angles define a ‘safe zone’.

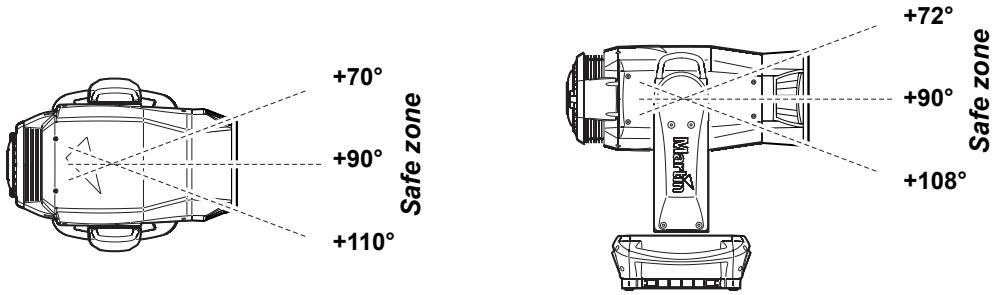
    Selecting **Outside** keeps pan and tilt outside the limits you set – i.e. angles define a ‘no-go zone’.

    Limits are not activated until the head is panned and tilted into its safe zone or out of its no-go zone.

    When pan/tilt limits are active, the PAN/TILT light at the bottom right of the display lights yellow.

See Figure 10. To limit pan so that it stays inside a safe zone 20° either side of fully forward and limit tilt so that it stays inside a safe zone 18° either side of fully forward, for example:

1. Set **PAN MINIMUM** to **70**°.
2. Set **PAN MAXIMUM** to **110**°.
3. Set **TILT MINIMUM** to +**72**°.
4. Set **TILT MAXIMUM** to +**108**°.
5. Set **P/T LIMIT AREA** to **Inside**.



Pan safe zone
Inside, min. +70°, max. +110°

Tilt safe zone
Inside, min. +72°, max. +108°

Figure 10: Pan/Tilt limit settings

Important! ***Regardless of the pan and tilt limits you set, when you power the fixture off, the head will sink under gravity to the nearest rest position (e.g. with the lens pointing vertically downwards if the fixture is hanging in a rig, or to one side if the fixture is standing fastened to a horizontal surface). When you power the fixture on, the head will not move until the fixture receives a pan or tilt command. When a command is received, if the head's rest position is outside its pan/tilt limits, the head will move slowly until it is within its limits. This feature reduces the risk of damage caused by a collision.***

Pan and tilt limits can quickly be returned to the factory default setting (all limits at 0°, pan/tilt limits disabled) by setting **DEFAULT LIMIT SETTINGS** to **On** and clicking with the jog wheel to confirm.

- **SPEED SETTINGS** lets you set **PAN & TILT SPEED** to **Normal**, **Fast** (optimized for speed) or **Slow** (optimized for smooth movement – useful in long-throw applications). Likewise, you can set **EFFECT SPEED** to **Normal**, **Fast** or **Slow**. You can also set effect speed to **Follow P/T speed**, in which effects will always use whatever speed is set for pan and tilt.
- The **FANS** menu gives three cooling fan options:
  - **LAMP COOLING** sets the lamp cooling effect to 50% or 80%. The color temperature of the lamp and lamp performance towards the end of the lamp life vary slightly with the level of lamp cooling applied. The default level is 80%, which is recommended for optimum performance over the full life of the lamp. Setting to 50% gives a slightly lower color temperature and quieter fan operation but accelerates the gradual reduction in output which is normal over the lifetime of a discharge lamp.
  - **FAN CLEAN** gives three options for automatically clearing dirt from fans:

    Off sets fans to normal operation with no fan cleaning function.

    Auto sets fans to normal operation, but if a fan error is detected, the fan that has reported an error speeds up to 100% for a short period and then returns to normal operation. If the fan error is still detected after three attempts at cleaning, the fan returns to normal operation but continues to report a fan error. This feature works independently for each of the fans. Attempts at cleaning are reset to zero if the fixture is reset or if **FAN CLEAN MODE** is updated.

    Forced sets all fans to 100% speed until another **FAN CLEAN MODE** setting is selected.

    This feature does not eliminate the need to inspect and clean cooling fans at regular intervals (see "Cleaning" on page 37).
  - **FAN MODE** allows you to set fans to **Always on** or **Follow lamp off** mode, in which fan operation is disabled when the lamp is powered off.
- **DIMMING CURVE** provides four dimming options (see Figure 11):

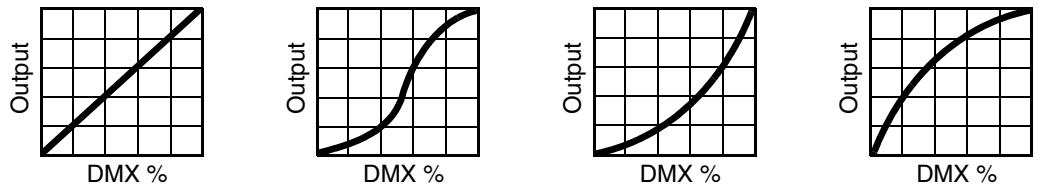


Figure 11: Dimming curve options

  - **Optically linear** – the increase in light intensity appears to be linear as DMX value is increased.
  - **VRMS linear (S-curve)** – light intensity control is finer at low levels and high levels and coarser at medium levels. This curve emulates the RMS voltage dimming characteristics of an incandescent lamp such as the tungsten halogen lamp of the Martin™ MAC TW1™.
  - **Square law** – light intensity control is finer at low levels and coarser at high levels.
  - **Inverse square law** – light intensity control is coarser at low levels and finer at high levels.
- **FOCUS TRACKING** sets focus to automatically self-adjust when you use the zoom effect (see "Zoom/focus linking" on page 25).
- **FOLLOWSPOT MODE** enables pan, tilt, or pan and tilt movement to be unlocked so that the head of the fixture can be directed by hand using a user-supplied handle (see "Followspot mode" on page 25). In followspot mode the motors can be applied as a brake to pan, tilt, or both pan and tilt movement to prevent head movement when the fixture is not "manned"; in this case DMX or menu-based control over pan and tilt is still disabled.
- **AUTOMATIC LAMP ON** gives three lamp strike options:
  - When set to **Off**, the lamp remains off until a "lamp on" command is received via DMX.

- When set to **On**, the lamp strikes automatically after the fixture is powered on.
- When set to **DMX**, the lamp strikes automatically when the fixture begins to receive DMX data, and lamp power is shut down 15 minutes after the fixture stops receiving DMX data. Automatic lamp strikes are staggered to prevent all lamps from striking at once. The delay is determined by the fixture address. No matter what the **AUTOMATIC LAMP ON** setting is, the lamp can be struck by sending a lamp on command via DMX on channel 21.

- **DMX LAMP OFF** and **DMX RESET** define whether the lamp can be powered off, or whether fixture or individual effects can be reset by sending a DMX command on channel 21. If either of these settings are set to **Off**, you can override this setting and cut lamp power or reset effects by applying a special combination of DMX values (see “MAC III AirFX DMX protocol” on page 43).
- **PARAMETER SHORTCUTS** determines whether the gobo wheels and color wheel take the shortest path between two positions (shortcuts enabled), crossing the open position if necessary, or always avoid the open position (shortcuts disabled).
- **DISPLAY** determines whether the display remains on permanently, or goes into sleep mode 2, 5 or 10 minutes after the last movement of the jog wheel or Escape button.
- **DISPLAY INTENSITY** lets you define the brightness of the backlit graphic display. Select **Auto** for automatic adjustment to match the ambient light level, or manually set the intensity to a level from 0% to 100%.
- **DISPLAY ROTATION** lets you rotate the display manually through 0°, 90°, 180° or 270° so that it can be read easily no matter how the fixture is oriented. If set to **Auto**, the MAC III AirFX senses its orientation and rotates the display automatically.
- **ERROR MODE** enables or disables error warnings. If set to **Start**, the display is activated and lights up if the fixture needs to report an error. If set to **Silent**, the fixture does not light the display with error warnings but error messages can still be read when the display is activated manually. In both **Start** and **Silent** modes, the status LED in the jog wheel lights amber to indicate a warning and red to indicate an error.

Factory settings

FACTORY SETTINGS lets you restore the fixture’s default setup options. Effect calibration is not affected, so any effects that have been re-calibrated will not be returned to factory calibration settings.

Fixture information readouts

The following fixture information can be called up in the display:

- **FIRMWARE VERSION** displays the currently installed fixture software version.
- **POWER ON TIME** provides two counters:
  - The **TOTAL POWER ON** counter is not user-resettable and displays total hours powered on since manufacture.
  - The **RESETTABLE POWER ON** counter is user-resettable and displays the number of hours the fixture has been powered on since the counter was last reset.
- **LAMP ON TIME** provides two counters:
  - The **TOTAL LAMP ON** counter is not user-resettable and displays total hours the lamp has been powered on since manufacture.
  - The **RESETTABLE LAMP ON** counter is user-resettable and displays the number of hours the lamp has been powered on since the counter was last reset.
- **LAMP STRIKES** provides two counters:
  - The **TOTAL LAMP STRIKES** counter is not user-resettable and displays the total number of lamp strikes since manufacture.
  - The **RESETTABLE LAMP STRIKES** counter is user-resettable and displays the number of lamp strikes since the counter was last reset.
- **AIR FILTERS** provides an alert feature for service interventions:
  - The **RESETTABLE AIR FILTER** counter displays the total number of hours the fixture has been powered on since the alert timer was last cleared.
  - **SET TIME ALERT** lets you set the number of hours from **1** to **750** you want the fixture to be powered on before a service alert appears in the display. If you set this figure to **0**, the time alert is disabled.
  - **CLEAR RESETTABLE AIR FILTER** lets you reset the resettable air filter counter to zero after completing service work.
- **FIXTURE MAC ID** displays the fixture’s factory-set MAC (Media Access Control) address.

- **RDM UID** displays the fixture's factory-set unique ID for identification in RDM systems.
- **FANS SPEED** provides separate status readouts from the fixture's cooling fans.
- **TEMPERATURE** provides a fixture temperature status readout.
- **POWER UNIT** provides the following readouts:
  - **MAINS VOLTAGE** displays a mains power voltage readout measured at the fixture's mains power input.
  - **LAMP VOLTAGE**, **LAMP CURRENT** and **LAMP WATTAGE** display readouts measured at the fixture's lamp terminals.
  - **LAMP STATE** gives a lamp status readout.
  - **IGNITER STATE** gives an igniter (starter) lamp status readout.
  - **INTENSITY** indicates current lamp intensity.
- **EVENT LOG VIEWER** lets you view event logs in the fixture's display panel. See "Event log" on page 32.

DMX signal monitoring

The MAC III AirFX provides data on the DMX signal it is receiving in the **DMX LIVE** menu. This information can be useful for troubleshooting control problems.

RATE displays the DMX refresh rate in packets per second. Values lower than 10 or higher than 44 may result in erratic performance, especially when using tracking control.

QUALITY displays the quality of the received DMX data as a percentage of packets received. Values much below 100 indicate interference, poor connections, or other problems with the serial data link that are the most common cause of control problems.

START CODE displays the DMX start code. Packets with a start code other than 0 may cause irregular performance.

The remaining options under **DMX LIVE** display the DMX values in a range from 0 - 255 that are being received on each channel.

Test sequence

TEST SEQUENCE activates effects in sequence, allowing you to test them quickly without a DMX controller:

ACTION lets you start, pause, and stop the sequence.

TYPE lets you test all effects, pan/tilt movement only, or the other effects only.

REPEAT sets the current test to repeat when finished.

Status readouts for the current test sequence are displayed below the **ACTION, TYPE** and **REPEAT** commands.

Manual control

The **MANUAL CONTROL** menu lets you reset the fixture, strike our douse the lamp, apply effects and move pan and tilt manually.

Setup Wizard menu

The **SETUP WIZARD** menu gives quick access to the most frequently required items in the control menus.

Adjusting settings via DMX

Certain fixture settings and parameters can be adjusted from the DMX controller on DMX channels 21 and 22.

Commands sent via DMX override any settings entered in the fixture's onboard control menus. However, to reset the fixture, reset individual effects or cut power to the lamp via DMX if **DMX Reset** or **DMX Lamp Off** are disabled in the control menus, certain conditions must be met (see the notes for channels 21 and 22 in the DMX Protocol table in this manual).

Note also that a lamp off command sent by DMX must be applied for 5 seconds before it executes.

These requirements are a safeguard to help you avoid resetting the fixture or powering the lamp off accidentally.

Resetting

Either the entire fixture or individual effects can be reset to their initial positions. Resetting individual effects can allow on-the-fly recovery if an effect loses its correct position, for example, without having to reset the entire fixture.

Lamp on / off

The lamp can be struck and doused from the DMX controller.

A peak of electric current that is many times the operating current is drawn for a fraction of a second when striking a discharge lamp. Striking many lamps at once may cause a voltage drop large enough to prevent lamps from striking or draw enough current to trip electronic circuit breakers. If sending lamp-on commands to multiple fixtures, program a sequence that strikes lamps one at a time.

Adjusting lamp power

If full light output is not required, the power supplied to the lamp by the ballast can be reduced. Reducing lamp power reduces heat output and therefore reduces noise from the cooling fans. It also reduces power consumption, and it helps reduce the gradual fall in output that occurs over the lifetime of a discharge lamp.

Lamp power can be to set to 1500 W (full power), 1200 W, 1100 W, 1000 W or 900 W via DMX using the ballast output control commands available on channel 21.

If the shutter and/or dimmer are closed for longer than 10 seconds, lamp power is automatically switched to 900 W. When the shutter is opened again, the lamp returns to full power.

Illuminating the display

The fixture's display panel can be brought out of sleep mode with a DMX command. This makes it possible to read the fixture's DMX address while the fixture is installed in the rig.

After being illuminated in this way, the display will return to sleep mode according to the setting entered in the onboard control menus.

Control menu setting overrides

The following fixture settings can be adjusted via DMX, overriding the settings entered in the onboard control menus. See under "Control panel operations" on page 15 for details of these parameters.

- Dimming curve
- Parameter shortcuts
- Zoom/focus linking
- Pan/tilt limits
- Calibration offsets

Defining calibration offsets via DMX

The ”Fixture adjustments/calibration (menu override)” DMX channel allows effect offsets to be adjusted and stored in the fixture from the DMX controller.

To adjust an effect offset:

1. Set the effect to a DMX value from 0 to 255 on its own DMX channel (for example, set Cyan to 192 on channel 4).
2. Send a ‘Store’ command for the effect on the Fixture Adjustment/Calibration channel.

The MAC III AirFX now reads the value on the effect channel (192 for Cyan in the example above), translates it to an adjustment value of between -5% and +5% as shown in Figure 12 (+2.5% Cyan adjustment in the example above) and stores that offset in memory.

See ”Fixture adjustments/calibration (menu override)” in the DMX protocol on page 47 for details of the offsets that can be adjusted using this method.

Effect offsets stored in memory are not affected by powering the fixture off and on or by updating the fixture software. To return all offsets to their factory defaults, send a DMX value from 245 to 249 on the ”Fixture adjustments/calibration (menu override)” channel 22 or apply **LOAD FACTORY SETTINGS** in the **FACTORY SETTINGS** menu in the fixture’s control panel.

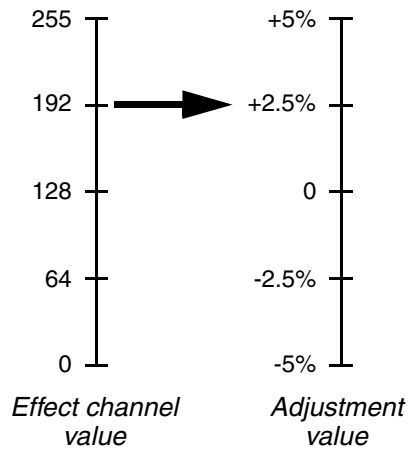


Figure 12: Offset adjustment values

Effects

This section gives details of the effects that can be controlled via DMX. See “MAC III AirFX DMX protocol” on page 43 for details of the channels used to control them.

Where fine control is available, the main control channel sets the first 8 bits (the most significant byte or MSB), and the fine channels set the second 8 bits (the least significant byte or LSB) of the 16-bit control byte. In other words, the fine channel works within the position set by the coarse channel.

Shutter and strobe effects

The MAC III AirFX’s mechanical shutter provides regular or random strobe and pulse effects with variable speed from 2 Hz to 10 Hz approximately.

To ensure total blackout, the mechanical dimmer also deploys if the shutter is closed for more than 5 seconds.

Dimming

The MAC III AirFX’s mechanical dimmer provides smooth, high-resolution 100 percent fading. 16-bit fine control of the dimmer is available.

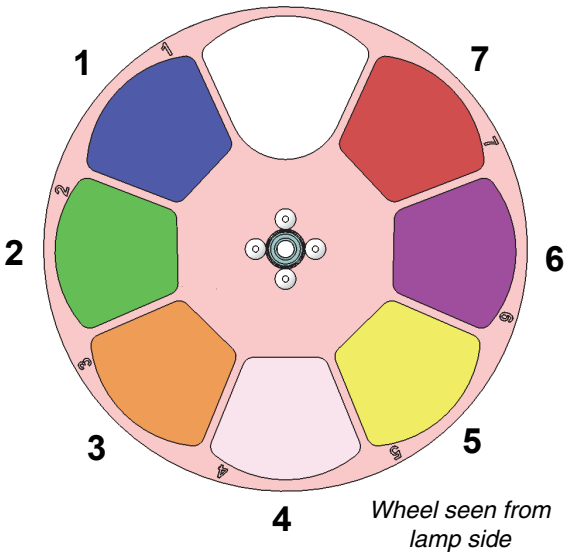
To ensure total blackout, the mechanical shutter also deploys by default if the dimmer is reduced to 0% for more than 5 seconds (this function can be disabled under SHUTTER BLACKOUT in the PERSONALITY control menu).

Cyan, Magenta, Yellow and CTO

The amount of cyan, magenta, yellow and CTO (color temperature control orange) applied to the MAC III AirFX’s light output can be varied from zero to 100%. Color temperature can be varied from 6000 - 3200 K.

Color wheel

The MAC III AirFX features a color wheel with 7 interchangeable dichroic color filters and an open position. Color filters can be applied as split colors or in full-color steps. The color wheel can also be scrolled continuously, applying the color filters in sequence with control of color wheel speed and direction. Color filters can also be applied at random at fast, medium or slow speed.



Color filters

1. Blue 101 - P/N 46404500
2. Green 203 - P/N 46404510
3. Orange 311 - P/N 46404520
4. NB half minus green - P/N 46404541
5. Yellow 610 - P/N 46404530
6. Deep blue (Congo) - P/N 46404550
7. Red 310 - P/N 46404560
8. Open

Figure 13: Color wheel

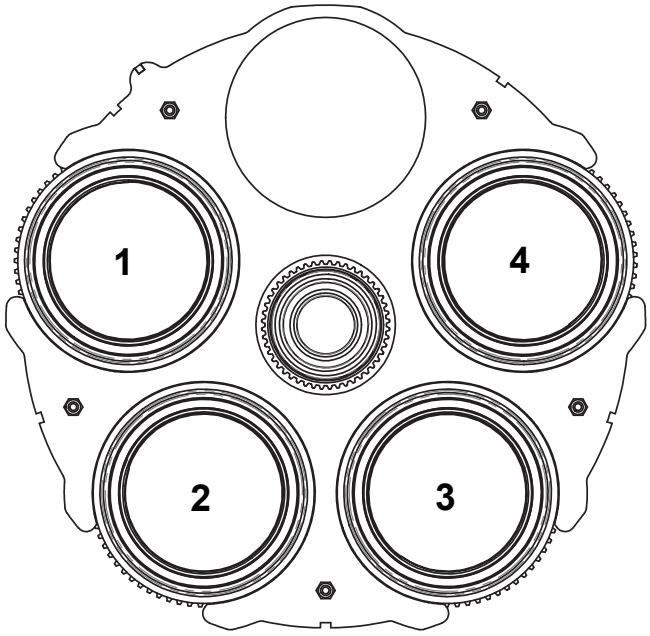
Aerial effects

The rotating aerial FX wheel in the MAC III AirFX provides 4 rotating mid-air effect gobos plus an open position. The gobos installed as standard are shown in Figure 14.

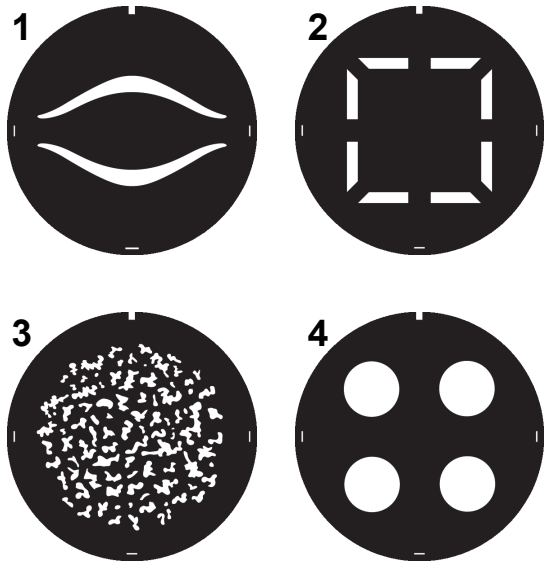
Gobos can be selected, indexed (positioned at an angle), rotated continuously, and shaken (bounced). The gobo wheel can also be scrolled continuously or shaken. Indexing, continuous gobo rotation, gobo shake and continuous gobo wheel scrolling are selected on channel 10. Depending on what is selected on this channel, the indexed angle or rotation speed are set on channel 11. If gobo indexing is selected on the first channel, fine control of gobo index angle is available on channel 12.

All gobos are interchangeable, but replacement gobos must match the dimensions, construction and quality of the gobos supplied as standard (see under “Specifications” on page 58). The aerial effect gobos and goboholders in the MAC III AirFX are *not* interchangeable with the gobos and goboholders in MAC III Profile and Performance fixtures.

Handling, installing and storing the gobos in the MAC III AirFX requires special care. See “Aerial effects in the MAC III AirFX” on page 39 for details.



Aerial FX wheel seen from lamp side



Gobos installed as standard

Gobos

1. Eyeball .....P/N 43100007
2. Cut Box .....P/N 43100005
3. Organic Delight .....P/N 43100000
4. Four Dots .....P/N 43100003

Part numbers are for gobo only (i.e. without retaining spring or holder).

Goboholder hardware

MAC III AirFX gobo spring..... P/N 17760720

MAC III AirFX goboholder with bearing ..... P/N 62409817

Figure 14: Aerial FX wheel

Wash effect

The MAC III AirFX has a Wash effect that can be faded in and out of the beam, softening the projection.

Iris

The iris can be set to a static diameter, or regular and random pulsing effects can be set with variable speed.

Focus and zoom

The focus lens focuses the beam from approximately 2 meters (6.5 feet) to infinity.

The separate zoom lens varies the focused beam angle from approximately 11.5° to 55° with the standard lens installed.

Zoom/focus linking

Focus can be linked to zoom so that it automatically adjusts to match changes in zoom angle.

Linked zoom/focus works within 3 distance ranges:

- Near (5 - 10 meters)
- Medium (10 - 20 meters)
- Far (20 meters - infinity)

To link zoom and focus, select a distance range using the Fixture Control/Settings DMX channel or **FOCUS TRACKING** in the **PERSONALITY** menu in the control panel. Then adjust focus to obtain the required degree of sharpness. Linking is now enabled and focus will auto-adjust.

Pan and tilt

16-bit pan and tilt control is available on channels 17 plus 18 (pan) and 19 plus 20 (tilt).

Maximum and minimum pan and tilt limits can be set using the control panel (see “Personality – tailoring performance” on page 17) and via DMX.

Followspot mode

The MAC III AirFX features a followspot mode in which the fixture ignores any pan, tilt, or pan and tilt commands sent via DMX or the control menu, releasing the head for use as a followspot.

In followspot mode, the pan and/or tilt motors can be engaged or disengaged using commands in the control menu. If motors are engaged, they act as a brake to pan, tilt, or both pan and tilt movement to prevent the head from moving when it is not being held in place, but DMX or menu-based control over pan and tilt is still disabled (see “Personality – tailoring performance” on page 17 and “Control panel menus” on page 48).

Followspot handles can be custom-made by the user to suit the user’s own preferences and requirements.

Followspot handles safety precautions

Warning! It is the user’s responsibility to ensure that the followspot handles and any mounting brackets are safe and that the fixture is kept in followspot mode at all times while handles are installed to avoid collision between the followspot handles and the yoke.

Warning! Intermediate brackets for permanent mounting on the back of the MAC III AirFX head must be constructed so that they will not touch the yoke at any point in the head’s tilt range!

Warning! Screws used to fasten any item to the rear of the head may only be fastened into the holes (arrowed in Figure 15) provided in the rear head cover. Do not attempt to fasten any item to the rear of the head by any other method. Screws must not protrude more than 15 mm (0.6 inches) into the rear head cover, or there is a danger that they may damage electrical insulation inside the head and create a risk of serious or lethal electric shock for the operator.

Warning! Followspot handles must be thermally insulated so that it is impossible for the operator to suffer discomfort or a burn injury.

Followspot handles use and construction

The MAC III AirFX’s rear head cover is a magnesium alloy casting. Magnesium alloy is prone to galvanic corrosion when steel screws are fastened into it and has a relatively low resistance to mechanical wear on threads. Self-tapping screws fastened into magnesium alloy should be left there permanently.

If you are going to switch between using the MAC III AirFX as a manually-controlled followspot and as a DMX-controlled moving head from time to time, you will need to install and remove followspot handles. In this case, we recommend that you fabricate two intermediate mounting brackets in a suitable material for repeated installation and removal of screws, fasten the brackets permanently to the rear head cover, and use these brackets as mounting points for the followspot handles.

If followspot handles are going to be installed permanently, there is no need for intermediate brackets.

The design of the brackets and followspot handles is left up to the user to match user requirements, but the following points must be noted:

- Intermediate mounting brackets must be as light as possible in order to minimize the effect of their extra weight on the balance of the head. It may be best to make them in aluminium.
- Four holes (arrowed in Figure 15) are provided in the fixture's rear head cover for fastening followspot handle mounting brackets.
- On most MAC III Profile fixtures manufactured before August 2009, the four holes are drilled but not threaded. If you have reconfigured a MAC III Profile as a MAC III AirFX, check these holes. If they are not threaded, use M6 thread-forming screws (DIN 7500) to fasten mounting brackets. Torx head screws are recommended because considerable force will be required to tighten the screws into the rear cover. If the four holes are threaded, use regular M6 machine screws for attachment.
- Whatever type of screw used, the portion of the screw that goes into the rear head cover must have a length of between 12 mm (0.47 in.) and 15 mm (0.6 in.).
- The rear head cover becomes very hot. Ensure that handles are insulated well enough to avoid discomfort or burn injuries for the followspot operator.
- A handle must only be fitted after followspot mode is enabled and tilt is performed manually. Always remove any handle that is fitted before disengaging followspot mode.

Besides being constructed so that they will not foul the yoke at any point in the tilt range, mounting brackets must match the dimensions shown in Figure 15.

Dimensions in Figure 15 are shown in millimeters:

- 216.8 mm = 8.53 in.
- 230.7 mm = 9.08 in.
- 78.9 mm = 3.11 in.

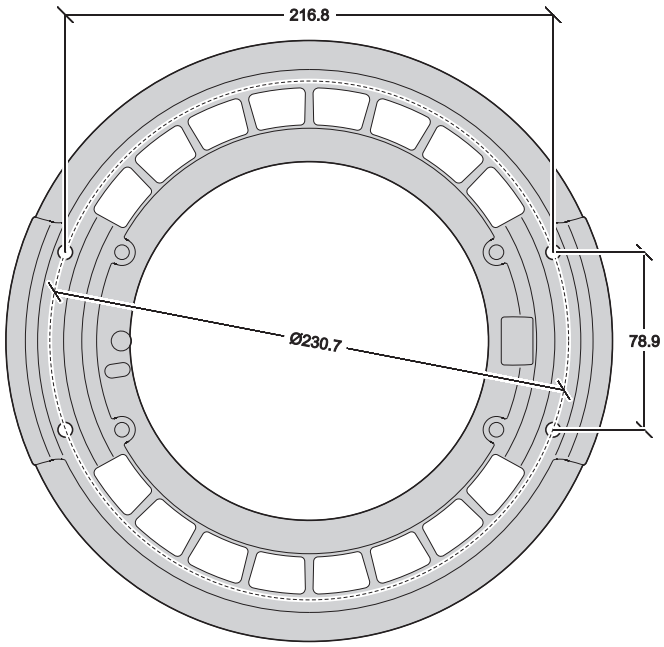


Figure 15: Dimensions for followspot handles

RDM

The MAC III AirFX can communicate using RDM (Remote Device Management) in accordance with ESTA's *American National Standard E1.20*.

RDM is a bi-directional communications protocol for use in DMX512 control systems, it is the open standard for DMX512 device configuration and status monitoring.

The RDM protocol allows data packets to be inserted into a DMX512 data stream without adversely affecting existing non-RDM equipment. The RDM protocol allows a console or dedicated RDM controller to send commands to and receive messages from specific fixtures.

RDM ID

Each MAC III AirFX has an RDM UID that makes it uniquely addressable. This can be found in the control panel menus under **FIXTURE INFORMATION**. **RDM UID** shows the fixture's factory-set unique ID for identification in RDM systems.

RDM communication

The MAC III AirFX will respond to:

1. "MAC III AirFX supported standard commands"; see page 28.
2. "MAC III AirFX supported manufacturer specific commands"; see page 29.

MAC III AirFX supported standard commands

GET allowed	SET allowed	RDM parameter ID's (slot 21-22)	Notes
		Category – Network Management	
		DISC_UNIQUE_BRANCH	
		DISC_MUTE	
		DISC_UN_MUTE	
		Category - Status Collection	
✓		QUEUED_MESSAGE	
✓		STATUS_MESSAGES	
✓		STATUS_ID_DESCRIPTION	
	✓	CLEAR_STATUS_ID	
		Category - RDM Information	
✓		SUPPORTED_PARAMETERS	
✓		PARAMETER_DESCRIPTION	
		Category – Product Information	
✓		DEVICE_INFO	
✓		DEVICE_MODEL_DESCRIPTION	
✓		MANUFACTURER_LABEL	
✓	✓	DEVICE_LABEL	
✓	✓	FACTORY_DEFAULTS	
✓		SOFTWARE_VERSION_LABEL	
		Category - DMX512 Setup	
✓	✓	DMX_PERSONALITY	
✓		DMX_PERSONALITY_DESCRIPTION	
✓	✓	DMX_START_ADDRESS	
✓		SLOT_DESCRIPTION	
		Category – Sensors	See "RDM accessible onboard sensors" on page 29
✓		SENSOR_DEFINITION	
✓	✓	SENSOR_VALUE	
		Category – Dimmer Settings	Reserved for future use
		Category – Power/Lamp Settings	
✓	✓	DEVICE_HOURS	
✓	✓	LAMP_HOURS	
✓	✓	LAMP_STRIKES	
✓	✓	LAMP_STATE	
✓	✓	LAMP_ON_MODE	
✓	✓	DEVICE_POWER_CYCLES	
		Category - Display Settings	
✓	✓	DISPLAY_INVERT	
✓	✓	DISPLAY_LEVEL	
		Category – Configuration	
✓	✓	PAN_INVERT	
✓	✓	TILT_INVERT	
✓	✓	PAN_TILT_SWAP	
		Category – Control	
✓	✓	IDENTIFY_DEVICE	
	✓	RESET_DEVICE	
✓	✓	PERFORM_SELFTEST	
✓	✓	SELF_TEST_DESCRIPTION	

RDM accessible onboard sensors

The following onboard sensors are RDM accessible:

FAN SPEED	LAMP R FAN
	LAMP L FAN
	BOTTOM FAN
	CMY FAN
	TOP FAN
	MAINBOARD FAN
	POWER FAN 1
	POWER FAN 2
TEMPERATURE	UI PCB
	CHARGER PCB
	BATTERY
	FAN PCB
	AERIAL FX PCB
	CMY PCB
	ZOOM FOCUS PCB
	PAN/TILT PCB
	POWER UNIT PCB
	POWER UNIT CAPACITOR
POWER UNIT	MAINS VOLTAGE
	LAMP VOLTAGE
	LAMP CURRENT
	LAMP WATTAGE

MAC III AirFX supported manufacturer specific commands

GET allowed	SET allowed	RDM parameter ID's (slot 21-22)	Notes
		Category – DMX protocol settings	
✓	✓	DMX_LAMP_OFF	
✓	✓	DMX_RESET	
		Fixture behavioral settings	
✓	✓	EFFECT_SPEED	
✓	✓	EFFECT_SHORTCUTS	
✓	✓	LAMP_HOUR_WARNING_HOURS	Data range is 0 - 750 hours
✓	✓	AIR_FILTER_HOUR	Data range is 0 - 750 hours
✓	✓	AIR_FILTER _HOUR_WARNING_HOURS	Data range is 0 - 750 hours
✓	✓	DIMMER_CURVE	
✓	✓	FOCUS_TRACKING	
✓	✓	DISPLAY_AUTO_OFF	
		Fixture pan/tilt settings	
✓	✓	PAN_TILT_SPEED	
✓	✓	PAN_TILT_MOVE_ON_RESET	
✓	✓	PAN_TILT_LIMITATION	
✓	✓	PAN_LIMITATION_MINIMUM	
✓	✓	PAN_LIMITATION_MAXIMUM	
✓	✓	TILT_LIMITATION_MINIMUM	
✓	✓	TILT_LIMITATION_MAXIMUM	
✓	✓	PAN_TILT_LIMITATION_AREA	
		Fixture followspot settings	
✓	✓	FOLLOW_SPOT_MODE	

	✓	FOLLOW_SPOT_MODE_LOCK_TOGGLE	
✓	✓	FOLLOW_SPOT_MODE _LOCK_PAN	
✓	✓	FOLLOW_SPOT_MODE _LOCK_TILT	
		Fixture cooling settings	
✓	✓	LAMP_COOLING	
✓	✓	FAN_CLEAN	
✓	✓	FAN_MODE	
		Fixture other settings	
✓		SERIAL_NUMBER	
	✓	LICENSE_KEY	
	✓	EVENT_LOG_USER_EVENT_TRIGGER	

Service and maintenance

Warning! Disconnect the fixture from power and allow to cool for 2 hours 45 minutes before removing any cover.

Important! Excessive dust, smoke fluid, and particulate buildup degrades performance, causes overheating and will damage the fixture. Damage caused by inadequate maintenance is not covered by the warranty.

This section lists service and maintenance operations that may be carried out by the user. Refer any operation that is not described here to a qualified Martin technician.

The MAC III AirFX requires routine cleaning. The schedule depends heavily on the operating environment. It is essential to follow the cleaning guidelines given later in this section.

Tilt lock

Important! ***Release the tilt lock before operating the fixture.***

The tilt position of the head can be locked at various angles for service. Push the lock in towards the yoke in one direction to lock the head and back in from the other side to unlock the head.

There is no pan lock on the MAC III AirFX.

Important! ***Release the tilt lock before packing the fixture in the flightcase.***

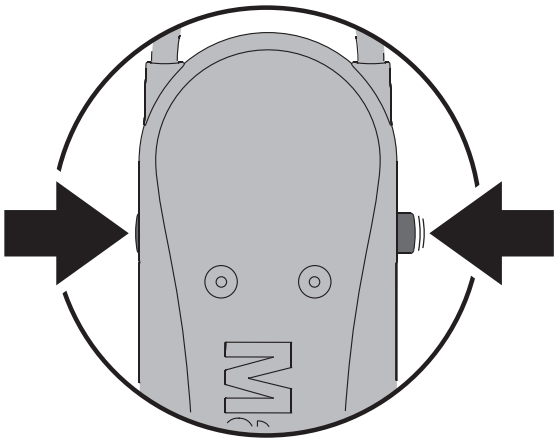


Figure 16: Tilt lock

Service utilities

The **SERVICE** menu in the main menu provides utilities for technicians rigging or servicing the fixture:

- **PAN/TILT FEEDBACK** lets you disable feedback to the fixture software from the pan, tilt and effects positioning systems. If feedback is set to **On** and a pan, tilt or effect position error is detected, the shutter closes and the effect resets. This feature can be disabled by setting feedback to **Off**.
  The **Off** setting is not saved when the fixture is powered off, and the system will be re-enabled the next time the fixture starts. If a pan/tilt position error occurs and the system cannot correct pan/tilt position within 10 seconds, feedback is automatically disabled.
- **ADJUST** is for use at the factory and by authorized Martin Service technicians only. This menu allows dimmer, shutter, pan and tilt positions to be adjusted after replacement of components, etc. To adjust the default positions of all the MAC III AirFX's effects, use the **CALIBRATION** menu instead.

Important! ***Do not enter the ADJUST menu without service documentation from Martin.***

- **CALIBRATION** sets effects to their factory default positions or lets you set new default positions for calibration purposes. See "Calibration" later in this chapter for full details.
- **UPDATE FIRMWARE**, updates the firmware (fixture software). For a detailed guide to updating the firmware, see "Software installation" later in this chapter.
- **EVENT LOG** gives access to the fixture's log. See next section.

Event log

The MAC III AirFX monitors performance, any errors or warnings, temperatures, etc. and stores data in an ongoing service event log that can be viewed in the fixture's display or downloaded to a USB memory device and viewed on a PC.

Power cycle reports are created automatically each time the fixture is powered up. The fixture stores up to 25 power cycle reports in memory. If the memory is full, the oldest report is deleted each time a new report is generated.

A power cycle report lists three types of data:

1. General data, settings	2. Events	3. Dynamic Content
General Information Personality Settings Adjust Settings Calibration Settings Fixture Information Module Information PCB Information	Errors, warnings, changes in settings	Fan speeds Temperatures Other data

General data, settings displays fixture information and lists current settings.

Events is only displayed if any warnings, errors or changes in settings occur, and lists these with the amount of time that has passed since they occurred.

Dynamic content displays technical data for the fixture that is intended to help troubleshooting. It is only displayed if warnings or errors are listed in the Events section. Dynamic content is updated automatically with current data — and the old data is saved to the event log — every 15 minutes for up to 10 hours. The oldest data is then replaced by new data. If an error or warning occurs, data is updated immediately. Dynamic content can also be updated manually. This can be useful if a fixture does not behave as expected, for example, but the fixture is not showing an error or a warning. the user can check that the DMX start code is zero to eliminate poor data transmission as a possible cause of the problem. To renew the dynamic content in the current power cycle report with the current data:

- select **SERVICE** → **EVENT LOG** → **EVENT LOG TRIGGER** in the control panel, or
- send the RDM command **EVENT_LOG_USER_EVENT_TRIGGER**.

To delete all previous power cycle reports in the event log from memory, select **SERVICE** → **EVENT LOG** → **Clean Event Log** in the control panel.

Viewing the event log in the fixture's display panel

To view the event log in the fixture's display panel, select **FIXTURE INFORMATION** → **EVENT LOG VIEWER** in the control panel.

The **EVENT LOG VIEWER** displays all the power cycle reports in memory and supplementary information about any event you scroll to. Use the jog wheel to scroll through the power cycle reports. As you scroll and highlight each event, details of the event are shown at the bottom of the display:

- **TIME** gives the time after power up that the event occurred.
- **DESCRIPTION** gives type of event.
- **VALUE** gives either the value of a new personality setting (e.g. **On**/**Off**) or the long description of an error code (e.g. **FOER** = focus error).

Viewing power cycle reports on a PC

To view the current and most recent power cycle reports on a PC:

1. Insert a USB memory device in the fixture's USB port to open the USB device pop-up window.
2. Select **Download Event Log** and wait for the log file to be saved to the USB device.
3. Remove the USB memory device, and carry out this procedure with other fixtures if required.
4. Connect the USB memory device to a PC. Logs are stored in the root directory of the memory device in a folder called EVENT LOGS MAC III SERIES using the naming convention LOG MACIII XXXXXXXXXX.xml (where XXXXXXXXXX is the serial number of the fixture). The XML files can be viewed using any web browser that supports XSLT 1.0 such as Internet Explorer 6, Firefox 3, Google Chrome 1, Opera 9, Apple Safari 3 or later versions.
5. Double-click on the event log to open it in your web browser.

Event log structure when viewed in a web browser

The title **Power Cycle** is displayed in red if that power cycle report includes an error.

Event log XML files are divided into boxes:

- **General information** lists the most important information held by the fixture.

Power Cycle 1 (most recent)

General Information	
Description	**Value**
Firmware Version/Revision	1.5.0:1641
Fixture Serial	(00)0000000000
RDM UID	4D50:12345678
IP Address	16.0.0.1
MAC Address	00:03:43:01:23:45
DMX Address	1
DMX Protocol Setting	16 Bit extended

- **Personality Settings** lists the fixture's settings at power up.

Personality Settings	
Description	**Value**
Swap Pan/Tilt	Off
Inverse Pan	Off
Inverse Tilt	Off
Move On Reset	On
Pan/Tilt Limitation	Off
Pan Minimum	0
Pan Maximum	360
Tilt Minimum	-134
Tilt Maximum	134
Pan/Tilt Limit Area	Inside
Pan and Tilt Speed	Normal

- **Adjustment Settings** displays the fixture's factory adjustment settings at power up. These settings should only be changed by Martin Service or its authorized agents.

Adjust Settings	
Description	**Value**
Dimmer Flag 1	0.4
Dimmer Flag 2	0.4
Shutter	0.4
Pan	0.4
Tilt	0.4

- **Calibration Settings** displays the fixture's calibration settings at power up. These settings can be changed by the user (see "Calibration" on page 35).

Calibration Settings	
Description	**Value**
Dimmer	0.04
Cyan	0.08
Magenta	0.12
Yellow	0.16
CTC	0.20
Color	0.23
Gobo 1	0.27
Gobo 1 Rotation	0.31
Gobo 2	0.35
Gobo 2 Rotation	0.39

- **Fixture Information** displays data from the fixture's timers when it was last powered up.

Fixture Information	
Description	**Value**
Lamp On Time Total	0
Lamp On Time Resettable	0
Air Filter Counter Resettable	0
Power On Time Total	0
Power On Time Resettable	0
Lamp Strike Counter Total	1
Lamp Strike Counter Resettable	1

- **Module Information** displays data from the fixture's effects modules.
- **PCB information** displays data from the fixture's PCBs.

Module Information

Type	Part No	Revision	Serial	Order Nr	Test person ID	Production Date
Zoom/Focus	12345678	0	168496141	000000000000	00000	2008-06-09 09:37:00
CMY	12345678	0	168496141	000000000000	00000	2008-06-09 09:37:00
Effect	12345678	0	168496141	000000000000	00000	2008-06-09 09:37:00
Pan/Tilt	12345678	0	168496141	000000000000	00000	2008-06-09 09:37:00

PCB Information

Type	Part No	Revision	Serial	Order Nr	Test person ID	Production Date
Cooling	12345678	0	168496141	000000000000	00000	2008-06-09 09:37:00
Zoom/Focus	12345678	0	168496141	000000000000	00000	2008-06-09 09:37:00
CMY	12345678	0	168496141	000000000000	00000	2008-06-09 09:37:00
Effect	12345678	0	168496141	000000000000	00000	2008-06-09 09:37:00
Effect	12345678	0	168496141	000000000000	00000	2008-06-09 09:37:00
Pan/Tilt	12345678	0	168496141	000000000000	00000	2008-06-09 09:37:00
Ballast	00000000	I	00000405	0	00000	1900-01-00 00:00:00
UI	00000000	F	00000000		00000	0000-00-00 00:00:00
UNDEFINED	00000000	00000000	000000			

- The **Event Section** lists all the errors, warnings and setting changes carried out by the user since the last power cycle in the event log. The **Time** column on the left of the box displays the amount of time between the fixture powering up and the event. Thus, in the example on the right, a main PCB fan error occurred 2 minutes and 7 seconds after power up and the pan/tilt sensor was not calibrated (warning was listed as ACTIVE) 1 minute and 24 seconds after power up but was calibrated (warning was listed as INACTIVE) 8 minutes and 48 seconds after power up.

Event Section

Time	Type	Description	Value
00:01:24	ERROR	PTCM ACTIVE	PAN/TILT SENSOR CAL MISSING
00:01:25	ADJUST	Dimmer Flag 1	0.4
00:01:25	ADJUST	Dimmer Flag 2	0.4
00:01:27	RESET	User Reset	All
00:02:07	ERROR	FAN ACTIVE	MAINBOARD FAN ERROR
00:02:15	PERSONALITY	Fan Mode	Follow lamp off
00:08:48	ERROR	PTCM INACTIVE	PAN/TILT SENSOR CAL MISSING

- **Dynamic Content** displays the speed of the fixture's fans, fixture temperatures and other data:
  - current data (in the example on the right, two minutes and one second after power up).
  - previously logged data (captured at 15-minute intervals over a total of up to 10 hours, most recent data at the top — see following example showing time).

Dynamic Content: 00:02:01

Fan Speed [RPM]

Description	Power Fan 1	Power Fan 2	Mainboard Fan	Lamp Right Fan	Lamp Left Fan	Bottom Fan	CMY Fan	Top Fan
Current	885	892	0	0	0	0	0	0
Logged + 00:00	0	0	0	0	0	0	0	0

Temperature [°C]

Description	Fan PCB	Animation Fx PCB	Gobo Fx PCB	CMY PCB	Zoom Focus PCB	Charger PCB	Battery	UI PCB	Pan/Tilt PCB	Power Unit PCB	Power Unit Capacitor
Current	0.0	0.0	0.0	27.0	28.2	0.0	0.0	0.0	30.6	23.0	0.0
Logged + 00:00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Other data

Description	Value
DMX Quality	0
DMX Start Code	0
Dimmer Intensity	99
Ballast Intensity	0
Lamp State	Off
Lamp Voltage	0
Lamp Current	0
Lamp Wattage	0
Main Voltage	225
Display Orientation	0º

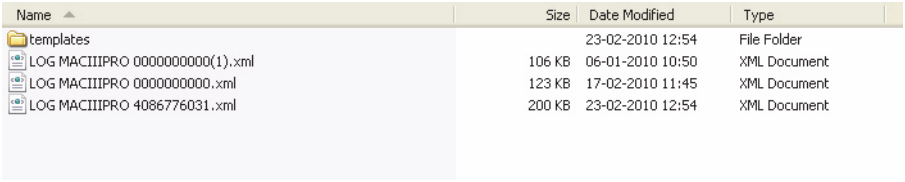
The example below in the **Dynamic Content** section, shows temperature data for the different sensors in the fixture. In the example, the fixture was powered on 3 hours and 15 minutes before the current temperature data was logged. Temperature change over time at 15 minute intervals can be followed in

the table. If you wish, it can also be copied and pasted into spreadsheet software such as Microsoft Excel.

Temperature [°C]											
Description	Fan PCB	Animation Fx PCB	Gobo Fx PCB	CMY PCB	Zoom Focus PCB	Charger PCB	Battery	UI PCB	Pan/Tilt PCB	Power Unit PCB	Power Unit Capacitor
Current	40.5	55.7	61.3	49.5	43.5	32.7	27.2	26.4	43.9	25.0	27.0
Logged + 00:00	40.2	55.5	61.1	49.3	43.2	32.7	27.1	26.3	43.8	25.0	27.0
Logged + 00:15	39.9	55.2	60.8	49.0	42.9	32.3	27.3	26.3	43.7	25.0	26.0
Logged + 00:30	39.5	54.8	60.4	48.6	42.5	32.7	26.9	26.2	43.5	25.0	26.0
Logged + 00:45	39.1	54.3	60.0	48.3	42.1	32.3	27.0	26.2	43.3	25.0	26.0
Logged + 01:00	38.5	53.8	59.4	47.8	41.5	32.2	26.8	26.1	43.1	25.0	26.0
Logged + 01:15	38.0	53.1	58.7	47.2	41.0	32.8	26.8	26.1	43.0	25.0	26.0
Logged + 01:30	37.3	52.3	57.8	46.4	40.4	32.8	26.9	26.1	42.8	25.0	26.0
Logged + 01:45	36.5	51.1	56.6	45.3	39.6	32.0	27.1	26.0	42.3	24.0	26.0
Logged + 02:00	35.4	49.6	55.2	44.0	38.7	32.0	26.0	25.7	41.7	24.0	25.0
Logged + 02:15	34.3	47.7	53.2	42.3	37.6	32.0	25.3	25.5	41.1	23.0	25.0
Logged + 02:30	32.8	45.2	50.6	40.4	36.3	31.5	24.5	25.0	40.2	23.0	24.0
Logged + 02:45	31.2	42.2	46.9	38.1	34.9	30.9	24.0	24.4	39.1	21.0	23.0
Logged + 03:00	29.2	38.1	42.0	35.1	32.9	29.3	23.0	23.4	37.8	20.0	21.0
Logged + 03:15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Handling XML log files

The XML event log files can be archived and e-mailed, but you must include the folder **templates** and its contents **MACIII_EventLog.css** and **MACIII_EventLog.xsl** in the same folder as the XML files so that web browsers can view the event logs correctly:



Zipping the **EVENT LOGS MAC III SERIES** folder before storing or sending should ensure that the nested **templates** folder is correctly included.

Calibration

The **CALIBRATION** and **ADJUSTMENT** menus let you define offsets in software that are relative to the mechanical reset or home positions. This allows you to fine-tune optical alignment and achieve uniform performance between fixtures. Fixtures are calibrated at the factory, and further calibration will normally only be necessary if fixtures have been subjected to abnormal shocks during transport or if normal wear and tear has affected alignment after an extended period of use.

Calibrating pan and tilt sensors

When you select **PAN/TILT SENSOR CALIBRATION**, a display message appears asking you to move pan and tilt to their end stop positions. To calibrate pan and tilt:

1. Move pan to its end stop position by rotating the yoke *clockwise* (as seen from above the head looking down at the base) to maximum pan.
2. Move tilt to its end stop by tilting the head to its maximum angle with the front glass pointing away from the display panel.
3. Press the jog wheel to register the positions. The fixture will display **Saving...**

Warning! ***As soon as you exit pan/tilt sensor calibration, the head will move to its original position.***

4. Make sure that you are ready for the head to move, then press the Escape button to exit pan/tilt sensor calibration. The head will now pan and tilt back to where it was before you entered calibration mode.

Calibrating effects

Calibration can be carried out via DMX (see “Defining calibration offsets via DMX” on page 22) but the easiest approach is probably to set multiple fixtures to the same position (e.g. dimmer open 1%) and then calibrate each fixture using its onboard control panel while comparing its light output with a reference fixture.

The calibration range available for each effect varies but is approx 5%. After selecting a calibration value, click on the jog wheel to set the effect to that value.

Loading and storing default calibration offsets

LOAD DEFAULTS? lets you load the factory default calibration offsets stored in memory**.**

SAVE FACTORY DEFAULT? lets you overwrite the factory default calibration offsets stored in memory with any new offsets you have defined. Overwriting is permanent, so once you have saved new factory default offsets, **LOAD DEFAULTS?** will reload the new offsets.

Software installation

The currently installed firmware (fixture software) version can be viewed under **FIXTURE INFORMATION** in the main menu. Firmware updates are available from the Martin website and can be installed using either of two methods:

- a USB memory device loaded with ‘bank’ files and inserted in the MAC III AirFX’s USB port, or
- a Windows PC loaded with ‘MU3’ files and running the Martin Uploader application, connected to the MAC III AirFX’s data input socket via a Martin Universal USB/DMX™ or a Martin DABS1™ hardware interface.

Module firmware updating

Calibration data is stored in the relevant modules wherever possible so that a module will stay calibrated if is removed from the fixture or installed in another fixture. If firmware is updated, a red spot next to the battery icon in the display blinks while data in the modules is being updated. This can take up to a minute. Do not switch the fixture off while the spot is blinking, or firmware will be corrupted.

Installing using a USB memory device

The following are required in order to install firmware using a USB memory device:

- The MAC III AirFX firmware ‘bank’ update file, available for download from the Product Support area of the Martin website at http://www.martin.com.
- A USB memory storage device (e.g. USB stick) with the update file copied from a PC into the memory device’s root directory.

To install the firmware:

1. Download the firmware ‘bank’ from the MAC III AirFX support page on the Martin website at www.martin.com, read the firmware release notes carefully to check for any instructions or warnings, and copy the ‘bank’ to the root directory of a USB memory stick.
2. Disconnect the data link from the MAC III AirFX.
3. Insert the USB stick in the MAC III AirFX’s USB host socket. The fixture should recognize the USB stick, illuminate the display panel and show the **UPDATE FIRMWARE** window in the display. Alternatively, scroll to the **UPDATE FIRMWARE** menu under **SERVICE** in the control panel.
4. Select **BANK**. Scroll up and down to see the firmware versions present on the USB stick and in the fixture’s internal memory. **LOCATION** indicates whether the firmware is located on the USB stick or in internal memory.
5. If you scroll to a firmware version on the USB stick and click the jog wheel, the firmware is downloaded to internal memory (where it will be available for future firmware updates), validated, unpacked and installed, and the fixture will restart using the new firmware.
6. Remove the USB stick. The newly-installed firmware version will now be displayed in the **FIXTURE INFORMATION** menu.
7. Reconnect the data link.

Zoom-focus linking is reset to default (medium distance) when new software is uploaded. Other fixture information and settings are unaffected.

Forced upload

The fixture can be forced to automatically upload a software file from a USB stick if the Escape button is held down during power up. We recommend that only one software update file is located in the memory device's root directory, but in the event that several versions are available, the fixture will upload the file with the most recent software version.

Installing using a PC and hardware interface

The following are required in order to install firmware using a PC and hardware interface:

- The MAC III firmware 'MU3' update file, available for download from the Product Support area of the Martin website at http://www.martin.com.
- A Windows PC running the latest version of the Martin Uploader™ application (also available for download free of charge from www.martin.com) and loaded with the firmware update file.
- A USB/DMX hardware interface device such as the Martin USB Duo™ or Martin DABS1™.

To install the MAC III firmware:

1. Download the firmware '.MU3' file from the MAC III AirFX support page on the Martin website at www.martin.com to the PC.
2. Read the firmware release notes carefully to check for any instructions or warnings.
3. Follow the instructions for an auto upload/upload via DMX in the Martin Uploader application help files and supplied with the hardware interface.

Cleaning

Regular cleaning is very important for fixture life and performance. Buildup of dust, dirt, smoke particles, fog fluid residues, etc. degrades the fixture's light output and cooling ability.

Cleaning schedules for lighting fixtures vary greatly depending on the operating environment. It is therefore impossible to specify precise cleaning intervals for the MAC III AirFX. Cooling fans suck in airborne dust and smoke particles, and in extreme cases fixtures may require cleaning after surprisingly few hours of operation. Environmental factors that may result in a need for frequent cleaning include:

- Use of smoke or fog machines.
- High airflow rates (near air conditioning vents, for example).
- Presence of cigarette smoke.
- Airborne dust (from stage effects, building structures and fittings or the natural environment at outdoor events, for example).

If one or more of these factors is present, inspect fixtures within their first 25 hours of operation to see whether cleaning is necessary. Check again at frequent intervals. This procedure will allow you to assess cleaning requirements in your particular situation. If in doubt, consult your Martin dealer about a suitable maintenance schedule.

Use care when cleaning optical components and work in a clean, well lit area. The coated surfaces are fragile and easily scratched. Do not use solvents that can damage plastic or painted surfaces.

Cleaning and replacing the air filters

The item **AIR FILTERS** in the **FIXTURE INFORMATION** menu is intended to be used to monitor intervals between air filter cleaning, although this counter can be used to monitor any aspect of the fixture.

When air filters require cleaning:

1. Disconnect the fixture from power and allow the components to cool for 2 hours 45 minutes.
2. See Figure 17. On each side of the head, use a flat-bladed screwdriver to lever the front edge of each filter holder slightly away from the head, then slide the screwdriver across to each corner and gently lever each corner free. Pull the filter holders forwards to unclip and remove them.

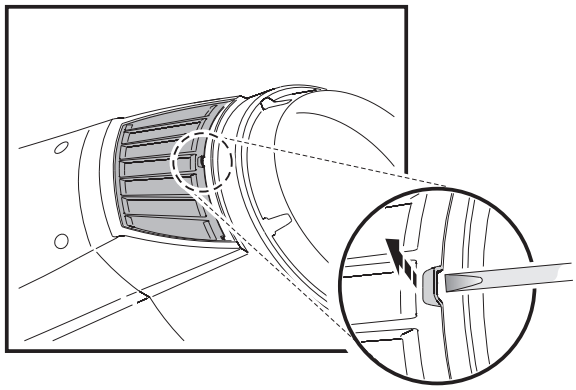


Figure 17: Removing head air filters

3. See Figure 18. On each side of the base, pinch the air filter holders in from the sides as illustrated, then pull the center of the holders outwards to unclip and remove them.
4. Clean the air filter elements. If they are saturated with smoke fluid, soak them in warm, soapy water and blot dry. If the filters cannot be cleaned completely or are not in perfect condition, replace them with new items.
5. Pinch the base filter holders in from the side and engage the ends of the filter holders their slots to clip them back into position.
6. See Figure 19. Engage the three tabs in the head filter holders in their slots in the head, pinch the foremost corners of the filter holder together slightly and press them into the head to clip them back into position.
7. Check that all filter holders are correctly installed so that there is an airtight seal around all their edges.

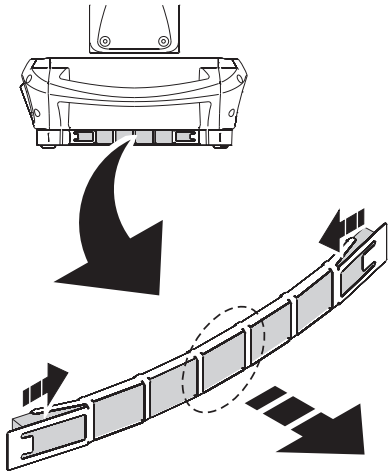


Figure 18: Base air filters

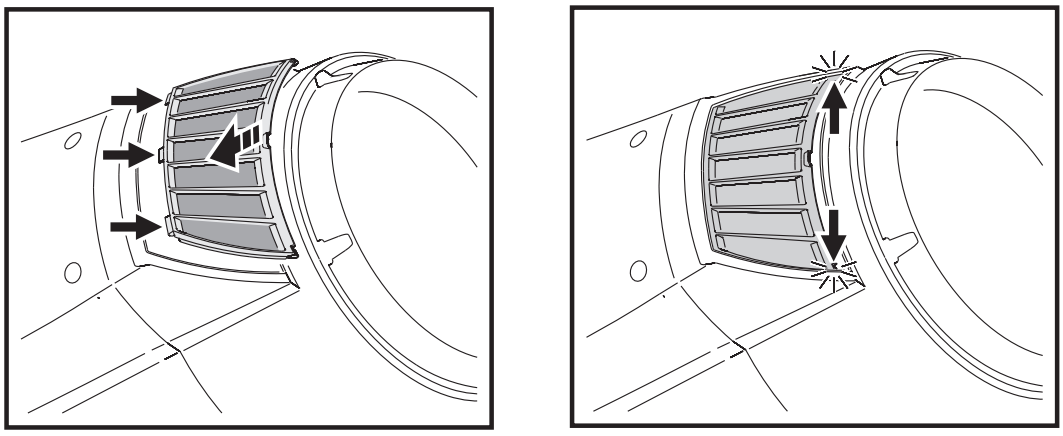


Figure 19: Reinstalling head air filters

Cleaning the fixture

To clean the head:

1. Power the lamp off, allow components to cool for 2 hours 45 minutes and disconnect the fixture from power.
2. Remove both head covers by loosening their quarter-turn retaining screws (see Figure 20).
3. Vacuum or gently blow away dust and loose particles inside the head with compressed air.
4. Carefully clean the optical components, but note that special precautions apply to the gobos (see “Aerial effects in the MAC III AirFX” on page 39). Remove smoke and other residues with cotton swabs or unscented tissues moistened with isopropyl alcohol. A commercial glass cleaner may be used, but residues must be removed with distilled water. Clean with a slow circular motion from center to edge. Dry with a clean, soft and lint-free cloth or compressed air. Remove stuck particles with an unscented tissue or cotton swab moistened with glass cleaner or distilled water. Do not rub the surface: lift the particles off with a soft repeated press.
5. Remove dust from fans and air vents with a soft brush, cotton swab, vacuum, or compressed air.
6. Reinstall the head covers.

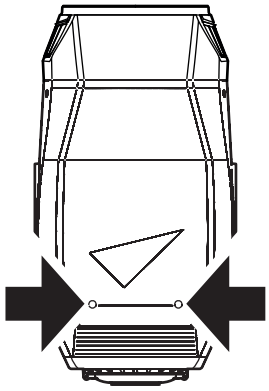


Figure 20: Head cover screws

Lubrication

The MAC III AirFX does not require lubrication under normal circumstances. The slides for the zoom and focus lens cars are lubricated with a long-lasting teflon-based grease that can be reapplied by a Martin service partner if necessary.

Replacing a color filter

Note: Wear cotton gloves while handling color filters and use only genuine Martin filters.

1. Power the lamp off and allow the fixture to cool for 2 hours 45 minutes. Disconnect the fixture from power.
2. The top of the head is *above* the text on the lamp cover. Lock the head in a convenient position for access to the top of the head.
3. Remove the two retaining screws (see Figure 20) from the top cover and lift it away from the head. Let the cover hang on its safety wire or unclip the safety wire and remove the cover completely.
4. Rotate the color wheel until the filter you want to change is accessible. Lift the outer edge of the filter away from the color wheel slightly to release it, then pull it free of its retention spring and out of the color wheel.
5. To insert a filter, slide it into the color wheel so that it clips under its retention spring and make sure that the filter’s outer edge engages in the lip on the edge of the color wheel.
6. If no further service work is to be carried out, reinstall the top cover with its safety wire and release the tilt lock.

Aerial effects in the MAC III AirFX

The MAC III AirFX uses specially-designed borosilicate 3.3 aerial effect gobos with a heavy matted aluminum coating that require particularly careful handling and storage.

The use of metal gobos in the MAC III AirFX is not recommended.

Do not use gobos with dark coatings on any side, as these will absorb heat – either directly from the lamp or reflected back from other optical components – and will not be durable.

Handling and storage

1. Store all gobos in a dust-free environment with approx. 50% humidity.
2. Always use clean gloves when handling gobos.
3. Avoid touching the other gobos when taking out a gobo from the rack: the sharp edge of one gobo can scratch the others.

4. Clean the coated side of gobos with dust and oil-free compressed air only.
5. Clean the uncoated side of gobos with photographic quality lens-cleaner and optics cleaning tissues. Use a repeated dabbing action rather than a rubbing action.
6. Avoid scratching coated and uncoated sides.
7. Never place a gobo with the coated side face-down on any surface.
8. Mount the gobo with the matted coating towards the lens.

Replacing aerial effect gobos

Important! ***The gobo can fall out if the spring is inserted backwards.***

Do not lubricate gobo bearings: excess grease can cause loss of step.

Correct gobo orientation is critical. Read the guidelines in Figure 24 carefully before installing a gobo.

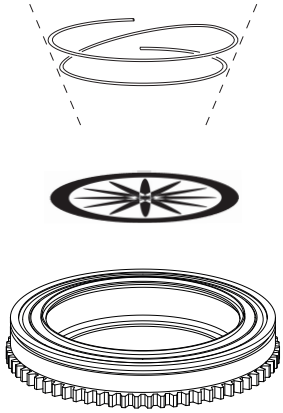


Figure 21: Rotating gobo holder

To replace a gobo:

1. Open the top cover as described under “Replacing a color filter” on page 39.
2. Note the positions of connectors, unplug them, remove the two Torx 20 screws that hold the effects module in the head and remove the module.
3. Rotate the aerial effects wheel until the gobo you want to replace is accessible.
4. See Figure 22. Loosen the two Torx screws (arrowed) on the goboholder retaining clips on either side of the gobo and slide the clips outwards to release the gobo.
5. Holding the goboholder by its teeth, lift it out of the wheel.
6. With a small screwdriver or similar, unhook the end of the gobo spring furthest from the gobo and pull out the spring. Drop the gobo out of the holder.

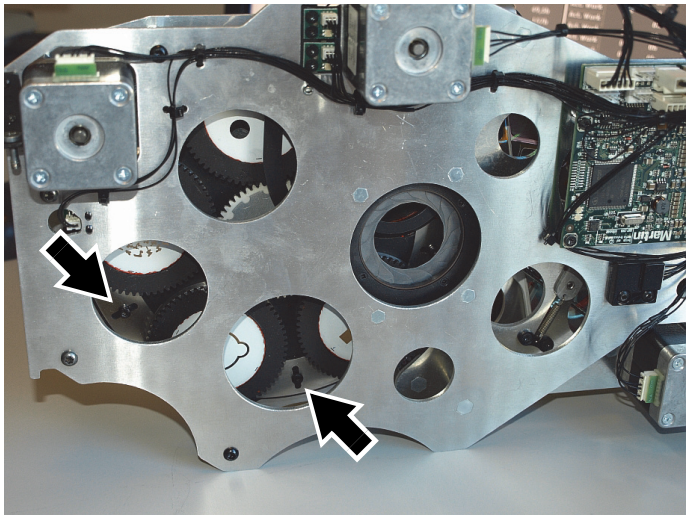


Figure 22: Goboholder retaining screws

7. Refer to Figure 21 and Figure 24. Hold the gobo over the holder with the side that must face towards the lamp facing *upwards, towards the spring*. See Figure 23. Line up the mark **A** in the new gobo with the magnet **B** in the holder (the marks in gobos are also visible at the top of each gobo in Figure 14 on page 24).
8. Place the gobo in the holder and Insert the spring with the narrow end against the gobo as shown in Figure 21. To identify the narrow end, press the spring flat: the narrow end is on the inside. Push the end of the spring in under the lip of the holder.
9. Check that the gobo is seated flush against the holder and that the spring is pressed as flat as possible against the back of the gobo.

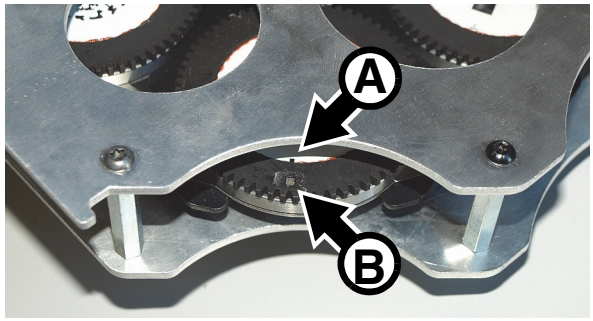


Figure 23: Correct gobo and holder orientation

10. Line up the goboholder, rotating the aerial effects wheel if necessary, so that the magnet faces in the same direction as the magnets on the other goboholders in the aerial effects wheel (for example, all magnets facing outwards), then fit the goboholder into position on the gobo wheel, engaging its teeth in the central activation cog.
11. Slide the goboholder retaining clips back into position so that they engage in the groove in the goboholder. Tighten the screws (arrowed in Figure 22), adjusting the position of the clips carefully so that the goboholder is held securely. The gobo must be able to rotate freely but must not be loose. Rotate the goboholder several times with your finger after you have tightened the screws to check this, and adjust the position of the clips if necessary.
12. Reinstall the effects module in the head, fastening it in position with its two Torx 20 retaining screws and reinstalling connectors in their original positions.
13. If no further service work is to be carried out, reinstall the top cover with its safety wire and release the tilt lock.

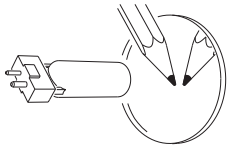
Gobo orientation

The orientations shown in Figure 24 are correct in most cases, but consult your Martin dealer or gobo supplier if you are in any doubt about the orientation of a specific gobo type. To minimize the risk of heat damage, priority must be given to installing gobos with their more reflective sides facing the lamp.

Coated Glass Gobos

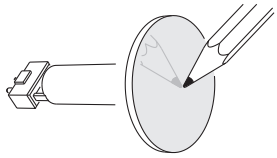
The heavy matted aluminum coated borosilicate gobos in the MAC III AirFX are factory-installed with the more reflective sides facing towards the lamp. Replacement gobos must also be installed with more reflective sides facing the lamp.

More reflective side towards lamp



To minimize the risk of gobo overheating and damage, turn the more reflective side of a coated gobo towards the lamp.

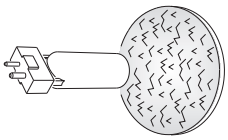
Less reflective side away from lamp



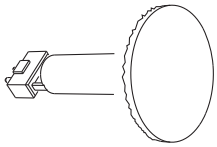
The less reflective side of a coated gobo will absorb less heat if it faces away from the lamp.

Textured Glass Gobos

Textured side towards lamp



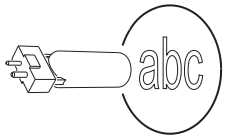
Smooth side away from lamp



Textured glass gobos in the MAC III AirFX sit most squarely in the gobo wheel with the textured side towards the lamp. If in doubt, consult your Martin dealer or gobo supplier.

Image / text Gobos

True image towards lamp



Reversed image away from lamp

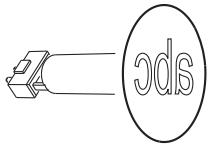


Figure 24. Correct gobo orientation

Removing modules

The MAC III AirFX is modular in design. A full procedure for removing and servicing effect modules is included in the Martin™ service package available for the MAC III AirFX.

MAC III AirFX DMX protocol

Software version 1.0.0

DMX channel	DMX value	Percent	Function	Fade type	Default value
1			**Strobe/shutter**	Snap	30
	0 - 19	0 - 7	Shutter closed (lamp switches to 800 watt mode after shutter is closed for 10 seconds)		
	20 - 49	8 - 19	Shutter open		
	50 - 64	20 - 25	Strobe, fast → slow		
	65 - 69	26 - 27	Shutter open		
	70 - 84	28 - 33	Opening pulse, fast → slow		
	85 - 89	34 - 35	Shutter open		
	90 - 104	36 - 41	Closing pulse, fast → slow		
	105 - 109	42 - 43	Shutter open		
	110 - 124	44 - 49	Random strobe, fast → slow		
	125 - 129	50 - 51	Shutter open		
	130 - 144	52 - 57	Random opening pulse, fast → slow		
	145 - 149	58 - 59	Shutter open		
	150 - 164	60 - 65	Random closing pulse, fast → slow		
	165 - 169	66 - 67	Shutter open		
	170 - 184	68 - 73	Burst pulse, fast → slow		
	185 - 189	74 - 75	Shutter open		
	190 - 204	76 - 81	Random burst pulse, fast → slow		
	205 - 209	82 - 83	Shutter open		
	210 - 224	84 - 89	Electronic sine wave strobe, fast → slow		
	225 - 229	90 - 91	Shutter open		
	230 - 244	92 - 97	Electronic burst strobe, fast → slow		
	245 - 255	98 - 100	Shutter open		
2			**Dimmer fade (MSB/LSB)**	Fade	0
3	0 - 65535	0 - 100	Closed → open		
4			**Cyan**	Fade	0
	0 - 255	0 - 100	White → full cyan		
			Cyan range in random CMY color *when random CMY selected on channel 9*		
	0	0	Normal (full range)		
	1 - 127	1 - 50	Minimum cyan setting (127 = full cyan)		
	128 - 254	51 - 99	Maximum cyan setting (128 = no cyan)		
	255	100	Normal (full range)		
5			**Magenta**	Fade	0
	0 - 255	0 - 100	White → full magenta		
			Magenta range in random CMY color *when random CMY selected on channel 9*		
	0	0	Normal (full range)		
	1 - 127	1 - 50	Minimum magenta setting (127 = full magenta)		
	128 - 254	51 - 99	Maximum magenta setting (128 = no magenta)		
	255	100	Normal (full range)		
6			**Yellow**	Fade	0
	0 - 255	0 - 100	White → full yellow		
			Yellow range in random CMY color *when random CMY selected on channel 9*		
	0	0	Normal (full range)		
	1 - 127	1 - 50	Minimum yellow setting (127 = full yellow)		
	128 - 254	51 - 99	Maximum yellow setting (128 = no yellow)		
	255	100	Normal (full range)		
7			**CTO**	Fade	0
	0 - 255	0 - 100	Open (6000 K) → warm (3200 K)		

Table 2: MAC III AirFX DMX Protocol

DMX channel	DMX value	Percent	Function	Fade type	Default value
8			**Color Wheel**	Snap	0
			Continuous Scroll		
	0	0	Open		
	1 - 19	1 - 7	Open → Slot 1 - Blue		
	20	8	Slot 1		
	21 - 39	9 - 15	Slot 1 → Slot 2 - Green		
	40	16	Slot 2		
	41 - 59	17 - 23	Slot 2 → Slot 3 - Orange		
	60	24	Slot 3		
	61 - 79	25 - 31	Slot 3 → Slot 4 - Minus green		
	80	32	Slot 4		
	81 - 99	33 - 39	Slot 4 → Slot 5 - Yellow		
	100	40	Slot 5		
	101 - 119	41 - 47	Slot 5 → Slot 6 - Deep blue (Congo)		
	120	48	Slot 6		
	121 - 139	49 - 55	Slot 6 → Slot 7 - Red		
	140	56	Slot 7		
	141 - 159	57 - 63	Slot 7 → Open		
	160	64	Open		
			Stepped Scroll (snap to full color positions)		
	161 - 164	65 - 66	Slot 7 - Red		
	165 - 168	67 - 68	Slot 6 - Deep blue (Congo)		
	169 - 172	69 - 70	Slot 5 - Yellow		
	173 - 176	71 - 72	Slot 4 - Minus green		
	177 - 180	73 - 74	Slot 3 - Orange		
	181 - 184	75 - 76	Slot 2 - Green		
	185 - 188	77 - 78	Slot 1 - Blue		
	189 - 192	79 - 80	Open		
			Continuous Rotation		
	193 - 214	81 - 86	CW, Fast → Slow		
	215 - 221	87 - 88	Stop (This will stop wherever the wheel is at the time)		
	222 - 243	89 - 94	CCW, Slow → Fast		
			Random color		
	244 - 247	95 - 96	Fast		
	248 - 251	97 - 98	Medium		
	252 - 255	99 - 100	Slow		
9			**Color shake/ random CMY**	Snap	0
	0 - 18	0 - 6	*No function* (Note: use DMX value 005 - 010 when setting calibration values on channel 22)		
	19 - 57	7 - 22	Color wheel: fast narrow shake → slow wide shake, around currently selected color		
			Random CMY: set min./ max. CMY range limits on channels 4 - 6		
	58 - 83	23 - 32	Fast		
	84 - 109	33 - 42	Medium		
	110 - 135	43 - 52	Slow		
	136 - 255	53 - 100	*No function*		

Table 2: MAC III AirFX DMX Protocol

DMX channel	DMX value	Percent	Function	Fade type	Default value
10			**Aerial FX selection, indexing, rotation, shake**	Snap	0
			Indexed aerial effect gobo selection: set indexed angle on channel 11		
	0 - 9	0 - 4	Open		
	10 - 14	4 - 5	Slot 1 - Eyeball		
	15 - 19	5 - 8	Slot 2 - Cut Box		
	20 - 24	8 - 10	Slot 3 - Organic Delight		
	25 - 29	10 - 12	Slot 4 - Four Dots		
			Continuous gobo rotation: set gobo rotation direction and speed on channel 11		
	30 - 34	12 - 14	Slot 1 - Eyeball		
	35 - 39	14 - 16	Slot 2 - Cut Box		
	40 - 44	16 - 18	Slot 3 - Organic Delight		
	45 - 49	18 - 20	Slot 4 - Four Dots		
			Gobo shake centered on indexed position: set indexed position on channel 11. Shake speed increases as shake angle decreases. Angle increments in following steps: 10°, 15°, 30°, 45°, 60°, 90°, 135°, 180°, 270° and 360°		
	50 - 79	20 - 31	Slot 1 - Eyeball, 360° slow → 10° fast shake		
	80 - 109	31 - 43	Slot 2 - Cut Box, 360° slow → 10° fast shake		
	110 - 139	43 - 54	Slot 3 - Organic Delight, 360° slow → 10° fast shake		
	140 - 169	55 - 66	Slot 4 - Four Dots, 360° slow → 10° fast shake		
			Continuous aerial FX wheel scroll with continuous gobo rotation: set gobo rotation direction and speed on channel 11		
	170 - 212	66 - 83	CW aerial FX wheel scroll, fast → slow*		
	213 - 255	83 - 100	CCW aerial FX wheel scroll, slow* → fast		
			**If gobo crossfading is enabled in control menu (PERSONALITY → GOBO X-FADE), slow = 5% speed. If gobo crossfading is disabled, slow = 30% speed*		
11			**Aerial FX gobo indexing, rotation direction and speed (MSB)**	Fade	128
			If indexed gobo (static or shake) is selected on channel 10		
	0 - 255	0 - 100	Gobo indexing, 0 → 395°		
			If continuous gobo rotation is selected on channel 10		
	0 - 2	0	No gobo rotation		
	3 - 126	1 - 50	CW gobo rotation, fast → slow		
	127 - 129	51	No gobo rotation		
	130 - 253	52 - 99	CCW gobo rotation, slow → fast		
	254 - 255	100	No gobo rotation		
12			**Aerial FX gobo indexing or rotation speed, fine (LSB)**	Fade	128
			If indexed gobo (static or shake) is selected on channel 10		
	0 - 255	0 - 100	Gobo indexing, fine		
			If continuous gobo rotation is selected on channel 10		
	0 - 255	0 - 100	Gobo rotation speed, fine		
13			**Iris**	Fade	0
	0 - 199	0 - 77	Open → closed		
	200 - 215	78 - 84	Closed		
	216 - 229	85 - 89	Opening pulse, fast → slow		
	230 - 243	90 - 94	Closing pulse, fast → slow		
	244 - 249	95 - 97	Random opening pulse, fast → slow		
	250 - 255	98 - 100	Random closing pulse, fast → slow		
14	0 - 255	0 - 100	**Wash effect** No wash → full wash (Note: use DMX value 030 when resetting pan and tilt limits on channel 22)	Fade	0
15	0 - 255	0 - 100	**Focus** Infinity → near	Fade	128
16	0 - 255	0 - 100	**Zoom** Flood → spot	Fade	128
17	0 - 65535	0 - 100	**Pan (MSB/LSB)** Left → right	Fade	32768
18					
19	0 - 65535	0 - 100	**Tilt (MSB/LSB)** Left → right	Fade	32768
20					

Table 2: MAC III AirFX DMX Protocol

DMX channel	DMX value	Percent	Function	Fade type	Default value
			Fixture control/settings		
	0 - 9	0 - 4	*No function*		
	10 - 14	4 - 5	Reset entire fixture(1)		
	15 - 19	6 - 7	Reset dimmer and shutter only(1)		
	20 - 24	8 - 9	Reset CMYC and color wheel only(1)		
	25 - 29	10 - 11	Reset FX module only(1)		
	30 - 34	12 - 13	Reset zoom and focus only(1)		
	35 - 39	14 - 15	Reset pan and tilt only(1)		
	40 - 44	16 - 17	*No function*		
	45 - 49	18 - 19	Lamp on		
	50 - 54	20 - 21	Lamp off (1, 2)		
	55 - 59	21 - 23	*No function* (Note: this value is used for managing pan/tilt limits and storing calibration values on channel 22)		
	60 - 64	23 - 25	Dimmer curve = Optically linear (menu override, unaffected by power off/on)(2)		
	65 - 69	26 - 27	Dimmer curve = Square law (menu override, factory default setting, unaffected by power off/on)(2)		
	70 - 74	27 - 29	Dimmer curve = Inverse square law (menu override, unaffected by power off/on)(2)		
	75 - 79	29 - 31	Dimmer curve = S-curve (menu override, unaffected by power off/on)(2)		
	80 - 84	31 - 33	*No function*		
	85 - 89	34 - 35	Pan & tilt speed = Normal (menu override, but returns to control menu setting after power off/on)(2)		
	90 - 94	35 - 37	Pan & tilt speed = Fast (menu override, but returns to control menu setting after power off/on)(2)		
21	95 - 99	37 - 39	Pan & tilt speed = Slow (menu override, but returns to control menu setting after power off/on)(2)	Snap	0
	100 - 139	39 - 54	*No function*		
	140 - 144	55 - 56	Parameter shortcuts = On (menu override, stays at factory default setting On after power off/on)(2)		
	145 - 149	57 - 58	Parameter shortcuts = Off (menu override, but returns to factory default setting On after power off/on)(2)		
	150 - 154	59 - 60	*No function*		
	155 - 159	61 - 62	Disable zoom/focus linking(2)		
	160 - 164	63 - 64	Enable zoom/focus linking, near distance(2)		
	165 - 169	64 - 66	Enable zoom/focus linking, medium distance (factory default setting)(2)		
	170 - 174	66 - 68	Enable zoom/focus linking, far distance(2)		
	175 - 194	68 - 76	*No function*		
	195 - 199	76 - 78	Ballast output set to 100%		
	200 - 204	78 - 80	Ballast output reduced, set to 90%		
	205 - 209	80 - 82	Ballast output reduced, set to 80%		
	210 - 214	82 - 84	Ballast output reduced, set to 70%		
	215 - 219	84 - 86	Ballast output reduced, set to 60%		
	220 - 234	86 - 91	*No function*		
	235 - 239	92 - 93	Illuminate display on fixture(2)		
	240 - 244	94 - 95	Turn off display on fixture		
	245 - 255	96 - 100	*No function*		
			(1) If DMX Reset or DMX Lamp Off are disabled in the control menus, a full or partial reset command or a lamp off command can be executed only if Slot 1 is selected on the color wheel (DMX value 20 on channel 8)		
			(2) Value must be held for 5 seconds to activate		

Table 2: MAC III AirFX DMX Protocol

DMX channel	DMX value	Percent	Function	Fade type	Default value
22			**Fixture adjustments/calibration (menu override)**	Snap	0
	0 - 39	0 - 15	*No function*		
	40 - 44	16 - 17	Enable pan/tilt limitation[4]		
	45 - 49	18 - 19	*No function*		
	50 - 54	20 - 21	Disable pan/tilt limitation[4]		
	55 - 59	21 - 23	*No function*		
	60 - 64	23 - 25	Set pan/tilt limit: head must stay **inside** defined limits (create safe zone)[4]		
	65 - 69	25 - 27	*No function*		
	70 - 74	27 - 29	Set pan/tilt limit: head must stay **outside** defined limits (create no-go zone)[4]		
	75 - 79	29 - 31	*No function*		
	80 - 84	31 - 33	Store current pan position as lower pan limit[4]		
	85 - 89	33 - 35	Store current pan position as upper pan limit[4]		
	90 - 94	35 - 37	*No function*		
	95 - 99	37 - 39	Store current tilt position as lower tilt limit[4]		
	100 - 104	39 - 41	Store current tilt position as upper tilt limit[4]		
	105 - 109	41 - 43	*No function*		
	110 - 114	43 - 45	Reset pan and tilt limits[3]		
	115 - 124	45 - 48	*No function*		
	125 - 129	49 - 50	Store dimmer calibration[4]		
	130 - 134	51 - 52	Store cyan calibration[4]		
	135 - 139	53 - 54	Store magenta calibration[4]		
	140 - 144	55 - 56	Store yellow calibration[4]		
	145 - 149	57 - 58	Store CTC calibration[4]		
	150 - 154	59 - 60	Store CMYC calibration[4]		
	155 - 159	61 - 62	Store AirFX gobo wheel slots calibration[4]		
	160 - 214	63 - 84	*No function*		
	215 - 219	84 - 86	Store iris calibration[4]		
	220 - 224	86 - 88	Store focus calibration[4]		
	225 - 229	88 - 89	Store zoom calibration[4]		
	230 - 234	90 - 91	Store pan calibration[4]		
	235 - 239	92 - 93	Store tilt calibration[4]		
	240 - 244	94 - 95	*No function*		
	245 - 249	96 - 97	Reset all calibrations to factory default[4]		
	250 - 255	98 - 100	*No function*		
			[3] To activate: • *Value must be held for 5 seconds* • *The CMY channels 4, 5 and 6 must all be set to DMX value 232* • *The wash effect channel 14 must be set to DMX value 030.*		
			[4] To activate: • *Value must be held for 5 seconds* • *Shake and Random CMY channel 9 must be set to DMX value 005 - 010* • *Fixture control channel 21 must be set to DMX value 055 - 059.*		

Table 2: MAC III AirFX DMX Protocol

MSB = Most significant byte

LSB = Least significant byte

Control panel menus

Software version 1.0.0
Commands marked * can also be executed via DMX

Menu level 1	Menu level 2	Menu level 3	Menu level 4	Notes (Default settings in bold print)
SETUP WIZARD	Gives quick access to most frequently-used menus: FACTORY SETTINGS, DMX ADDRESS, FIXTURE ID plus most frequently-used PERSONALITY settings: PAN/TILT SETTINGS, SPEED SETTINGS, FANS, DIMMING CURVE, AUTOMATIC LAMP ON, DISPLAY. See table below for details of these settings.			
DMX ADDRESS	1 – 486			DMX address (new fixtures are supplied with address set to **1**)
FIXTURE ID	0000 – 9999	User-settable fixture ID number		
PERSONALITY	PAN/TILT SETTINGS	SWAP		Map DMX pan control to tilt channel and vice versa
		PAN INVERT		Reverse DMX pan control: right → left
		TILT INVERT		Reverse DMX tilt control: down → up
		MOVE ON RESET		Enable/disable pan/tilt movement when fixture resets. **Default = On**
		PAN & TILT LIMIT SETTINGS	P/T LIMITATION	Enable pan and tilt range limits
			PAN MINIMUM	Set minimum pan angle (**0°** – 360°)
			PAN MAXIMUM	Set maximum pan angle (**360°** – 0°)
			TILT MINIMUM	Set minimum tilt angle (**-134°** – 134°)
			TILT MAXIMUM	Set maximum tilt angle (**134°** – -134°)
			P/T LIMIT AREA	Set pan/tilt to stay inside safe zone or stay outside no-go zone (**Inside**/Outside)
			DEFAULT LIMIT SETTINGS?	Reset all pan and tilt limit settings to factory defaults.
	SPEED SETTINGS	PAN & TILT SPEED	Normal	**Normal speed pan and tilt**
			Fast	Optimize pan/tilt movement for speed
			Slow	Optimize pan/tilt movement for smoothness
		EFFECT SPEED	Follow P/T speed	**Effects speed follows the speed setting applied to pan and tilt via DMX or in control menu**
			Normal	Normal effects speed
			Fast	Optimize effects movement for speed
			Slow	Optimize effects movement for smoothness

Table 3: Control menus

Menu level 1	Menu level 2	Menu level 3	Menu level 4	Notes (Default settings in bold print)
PERSONALITY (continued)	FANS	LAMP COOLING	50%	Sets lamp cooling fans to 50% capacity (color temperature of light output from the lamp is different at different thermal lamp temperatures)
			80%	**Sets lamp cooling fans to 80% capacity**
		FAN CLEAN	Off	Sets all cooling fans to no cleaning
			Auto	**Fan cleaning mode activated automatically if fan error reported**
			Forced	Sets all cooling fans to run at 100%
		FAN MODE	Always on	**Cooling fans operate constantly**
			Follow lamp off	Cooling fans stop when lamp is powered off
	DIMMING CURVE	Optical linear		Optically linear dimming curve
		S-Curve / VRMS linear		S-curve (fixture emulates incandescent lamp voltage linear RMS dimming curve)
		Square law		**Square law dimming curve**
		Inv.sq.law		Inverse square law dimming curve
	FOCUS TRACKING	Off		Disables zoom focus linking
		Near		Enables zoom focus linking, optimized for short-throw projection (5 - 10 m)
		Medium		**Enables zoom focus linking, optimized for medium-throw projection (10 - 20 m)**
		Far		Enables zoom focus linking, optimized for long-throw projection (20+ m)
	FOLLOWSPOT MODE	FOLLOWSPOT MODE	Off / On	Enables/**disables** followspot mode. In followspot mode, DMX control of pan and tilt is disabled so that the head can be moved using a followspot handle.
		LOCK/UNLOCK PAN & TILT		Engages or **disengages** both the pan and tilt motors acting as a brake on head movement. DMX control over pan is still disabled and this command is only available when followspot mode is on.
		LOCK PAN	Off / On	Engages (ON) the pan motor to act as a brake on head movement, or disengages (**OFF**) it so that the head can be freely panned using a followspot handle. DMX control over pan is still disabled and this command is only available when followspot mode is on.
		LOCK TILT	Off / On	Engages (ON) the tilt motor to act as a brake on head movement, or disengages (**OFF**) it so that the head can be freely tilted using a followspot handle. DMX control over tilt is still disabled and this command is only available when followspot mode is on.
	AUTOMATIC LAMP ON	Off		**Automatic lamp striking disabled**
		On		Lamp strikes automatically within 90 seconds of fixture being powered on
		DMX		Lamp strikes automatically when the fixture receives a DMX signal
	DMX LAMP OFF	Off		Lamp cannot be powered off via DMX (can be overridden: see DMX protocol)
		On		**Lamp can be powered off via DMX**
	DMX RESET	Off		Fixture cannot be reset via DMX (can be overridden: see DMX protocol)
		On		**Fixture can be reset via DMX**

Table 3: Control menus

Menu level 1	Menu level 2	Menu level 3	Menu level 4	Notes (Default settings in bold print)
PERSONALITY (continued)	PARAMETER SHORTCUTS	Off		Effects avoid open positions during effects changes
		On		**Effects take shortest route during changes, crossing open positions if necessary.**
	SHUTTER BLACKOUT	On		Shutter closes after 5 seconds when intensity is dimmed to 0%
		Off		**Shutter operation is independent of intensity**
	DISPLAY	On		Display permanently on
		2 min.		**Display goes into sleep mode 2 minutes after last key press**
		5 min.		Display goes into sleep mode 5 minutes after last key press
		10 min.		Display goes into sleep mode 10 minutes after last key press
	DISPLAY INTENSITY	Auto		Display auto-adjusts to ambient light level
		1 - 100%		Manually set display intensity
	DISPLAY ROTATION	0° / 90° / 180° / 270° / Auto		Rotate display manually or set to auto-rotate to match fixture orientation
	ERROR MODE	Normal		**Enable error messages and warnings in display**
		Silent with LED		Disable error messages and warnings in display (the LED in the jog wheel will still light to indicate fixture status if an error has been detected or the fixture has a warning)
	GOBO X-FADE	On		Enable gobo crossfading speed adjustment / minimum gobo wheel scrolling speed on channel 10
		Off		**Disable gobo crossfading speed adjustment**
FACTORY SETTINGS	LOAD FACTORY SETTINGS			Return all settings (except calibrations) to factory defaults

Table 3: Control menus

Menu level 1	Menu level 2	Menu level 3	Menu level 4	Notes (Default settings in bold print)
FIXTURE INFORMATION	FIRMWARE VERSION	Vxx.xx.xx		Fixture software version
	POWER ON TIME	TOTAL POWER ON		Display hours fixture has been powered on since manufacture (not user-resettable)
		RESETTABLE POWER ON		Display hours fixture has been powered on since last counter reset (user-resettable)
		CLEAR RESETTABLE POWER ON		Reset **RESETTABLE POWER ON** counter to zero.
	LAMP ON TIME	TOTAL LAMP ON		Display hours of lamp use since manufacture (not user-resettable)
		RESETTABLE LAMP ON		Display hours of lamp use since last counter reset (user-resettable)
		CLEAR RESETTABLE LAMP ON		Reset **RESETTABLE LAMP ON** counter to zero.
	LAMP STRIKES	TOTAL LAMP STRIKES		Display number of times lamp has been struck since manufacture (not user-resettable)
		RESETTABLE LAMP STRIKES		Display number of times lamp has been struck since last counter reset (user-resettable)
		CLEAR RESETTABLE LAMP STRIKES		Reset **RESETTABLE LAMP STRIKES** counter to zero.
	AIR FILTERS	RESETTABLE AIR FILTER		Display hours fixture has been powered on since timer was last cleared.
		SET TIME ALERT		Set alert timer from 0 - 750 hours.
		CLEAR RESETTABLE AIR FILTER		Resets **AIR FILTER** timer to zero.
	MAC ID	xx.xx.xx.xx.xx.xx		Fixture's MAC address
	SERIAL NUMBER	(xx)xxxxxxxxxxx		Fixture's serial number
	RDM UID	0x4D50.xxxxxxxx		Fixture's unique RDM ID
	FAN SPEED			Displays speed in RPM of all cooling fans
	TEMPERATURE			Displays temperature in °C of all PCBs and of ballast capacitor
	POWER UNIT			Displays voltage at mains power input, voltage, current and wattage at lamp terminals, lamp status, igniter status and lamp intensity.
	EVENT LOG VIEWER			Views fixture event log
DMX LIVE	RATE			DMX transmission speed in packets per second
	QUALITY			Percent of packets received
	START CODE			Value of the DMX start code
	STROBE/SHUTTER → FIXTURE ADJUSTMENTS			DMX value (0 - 255) received on each channel
TEST SEQUENCE	ACTION	Start / Stop / Pause		Run test sequence of all functions
	REPEAT	On / Off		Enable auto-repeat of test sequence
	STATUS → DURATION			Scene status information for test sequence
MANUAL CONTROL	RESET	ACTION		Click jog wheel to reset fixture
	LAMP ON/OFF	ACTION		Manually strike/douse lamp
	STROBE/SHUTTER → TILT			Set each effect manually.

Table 3: Control menus

Menu level 1	Menu level 2	Menu level 3	Menu level 4	Notes (Default settings in bold print)
SERVICE	PAN/TILT FEEDBACK	On		**Enable pan/tilt position feedback systems**
		Off		Disable pan/tilt position feedback
	ADJUST	PAN/TILT SENSOR CALIBRATION	PAN/TILT AT END STOP	Move pan and tilt to end stops following instructions in the display, then execute to calibrate pan and tilt sensors
		CMY MODULE	DIMMER	For use by qualified service technicians – see Martin service documentation before entering this menu
		EFFECT MODULE	SHUTTER	
		PAN/TILT MODULE	PAN	
			TILT	
	CALIBRATION	DIMMER ... TILT		Set individual effects to calibration positions (approx. +/- 5% offset available)
		LOAD DEFAULTS?		Load factory default calibration settings
		SAVE FACTORY DEFAULT?		Replace factory default calibration settings with current calibration settings
	UPDATE FIRMWARE	UPDATE		Execute to update fixture firmware from bank shown in display
		BANK		Firmware bank version
		LOCATION		Location of firmware bank
	EVENT LOG	EVENT LOG TRIGGER		Triggers generation of event log
		CLEAN EVENT LOG		Clears event log and any current errors

Table 3: Control menus

Service and display messages

The MAC III AirFX gives service and maintenance information by displaying a large 3- or 4-character short code and a smaller full-text message in the display. The short code is visible at a distance, allowing error identification with the fixture still in the rig, for example, while the full-text message gives more detailed information about the error.

Service warnings

If the MAC III AirFX requires service, it displays a warning indicating the service required. The most important short codes and messages are given in Table 4 below:

Short code	Full-text message
LLW	LAMP LIFE WARNING Lamp life is within 10% of its limit.
AIRS	AIR FILTER SERVICE WARNING (s/w versions from ver. 1.3) The timer available in the SERVICE menu has reached the point for which the alarm was set.
AFSW	AIR FILTER SERVICE WARNING (s/w versions prior to ver. 1.3) The timer available in the SERVICE menu has reached the point for which the alarm was set.

Table 4: Service warning messages

Error messages

The MAC III AirFX monitors its own operation. If it detects an error, it displays an error warning. The most important short codes and messages are given in Table 5 below:

Short code	Full-text message
BANK	UNABLE TO UNPACK BANK Error unpacking firmware during/after software reload
BATM	BATTERY MODE Switched to battery power source with limited functionality. Plug in power cable to restore full function operation.
BOTV	BOOTLOADER(S) VERSION NOT VALID Decentralized firmware in module cannot be replaced / does not match bank. Module or module bootloader replacement required.
BT W	BASE TEMPERATURE TOO HIGH At least one base PCB temperature >75°C
BTCO	BASE TEMPERATURE CUTOFF At least one base PCB temperature >85°C
BTER	BASE TEMP HIGH The temperature on a PCB in the base is high. A fan might be defective or the ambient temperature may be too high.
C1ER	COLOR WHEEL 1 ERROR
CCDE	CMY CALIBRATE DATA PCB (s/w versions prior to ver. 1.3) Unable to read/write data to external EEPROM board (calibrate date) on CMY module
CDCM	CALIBRATE DATA CMY Unable to read/write data to external EEPROM board (Calibrate Data) on CMY module. The PCB needs to be replaced.
CDEF	CALIBRATE DATA EFFECT Unable to read/write data to external EEPROM board (Calibrate Data) on Effect module. The PCB needs to be replaced.
CDPT	CALIBRATE DATA PAN/TILT Unable to read/write data to external eeprom board (Calibrate Data) on Yoke. The PCB needs to be replaced.

Table 5: Error messages

Short code	Full-text message
CDZF	CALIBRATE DATA ZOOM/FOCUS Unable to read/write data to external eeprom board (Calibrate Data) on Zoom/Focus module. The cables need to be checked or the module may need to be replaced.
CECH	COM ERROR CHARGER I2C communication between main controller and charger failed. The cables need to be checked or the module may need to be replaced.
CECM	COM ERROR CMY CAN communication between main controller and CMY driver failed. The cables need to be checked or the driver may need to be replaced.
CECO	COM ERROR COOLING CAN communication between main controller and cooling driver failed. The cables need to be checked or the driver may need to be replaced.
CEEF	COM ERROR EFFECT CAN communication between main controller and effects driver failed. The cables need to be checked or the driver may need to be replaced.
CELF	CLEAN EVENT LOG FAILED
CEPT	COM ERROR PAN/TILT CAN communication between main controller and pan/tilt driver failed. The cables need to be checked or the driver may need to be replaced.
CEPU	COM ERROR POWER UNIT I2C communication between main controller and ballast failed. The cables need to be checked or the module may need to be replaced.
CEUI	COM ERROR UI User interface communication failure. The cables need to be checked or the module may need to be replaced.
CEZF	COM ERROR ZOOM/FOCUS CAN communication between main controller and zoom/focus driver failed. The cables need to be checked or the driver may need to be replaced.
COLD	FIXTURE IS COLD PCBs are below -20° C (-4° F)
CONC	COOLING NO CONNECTION (s/w versions prior to ver. 1.3)
CONE	EFFECT NO CONNECTION (s/w versions prior to ver. 1.3)
CONM	CMY NO CONNECTION (s/w versions prior to ver. 1.3)
CONP	PAN/TILT NO CONNECTION (s/w versions prior to ver. 1.3)
CONZ	ZOOM/FOCUS NO CONNECTION (s/w versions prior to ver. 1.3)
CTER	CTC ERROR The sensors, wiring and motor need to be checked and the driver PCB may need to be replaced.
CYER	CYAN ERROR The sensors, wiring and motor need to be checked and the driver PCB may need to be replaced.
DIER	DIMMER ERROR The sensors, wiring and motor need to be checked and the driver PCB may need to be replaced.
DINA	DIMMER NOT ADJUSTED Dimmers need to be adjusted by a qualified service technician.
ECDE	EFFECT CALIBRATE DATA PCB (s/w versions prior to ver. 1.3) Unable to read/write data to external EEPROM board (calibrate date) on effect module
EEDF	WRITING EEPROM DEFAULT(S) No valid EEPROM in a CAN module. Writing default into the EEPROM based on the CAN address. Module is possibly incorrectly connected
EEPR	EEPROM INVALID/NO CONN. No connection or EEPROM data invalid
EFSM	ERROR FAILSAFE MODE Module error detected during self-check at startup. Service intervention required. Fixture control possibly disabled, depending on nature of error.
FAN	LAMP R FAN ERROR
FAN	LAMP L FAN ERROR
FAN	BOTTOM FAN ERROR

Table 5: Error messages

Short code	Full-text message
FAN	CMY FAN ERROR
FAN	TOP FAN ERROR
FAN	MAINBOARD FAN 1ERROR
FAN	POWER FAN 1 ERROR
FAN	POWER FAN 2 ERROR
FBEP	PAN FEEDBACK ERROR Unable to correct pan position
FBET	TILT FEEDBACK ERROR Unable to correct tilt position
FOER	FOCUS ERROR
FUSB	FORCED USB UPLOAD ENABLED The fixture has been started in forced upload mode (the Escape button was held during power up).
G11M	GOBO WHEEL GOBO 1 MISSING The gobo is not installed, faulty, or operating in extremely cold temperatures. Instal, replace or allow the gobo to warm up.
G12M	GOBO WHEEL GOBO 2 MISSING The gobo is not installed, faulty, or operating in extremely cold temperatures. Instal, replace or allow the gobo to warm up.
G13M	GOBO WHEEL GOBO 3 MISSING The gobo is not installed, faulty, or operating in extremely cold temperatures. Instal, replace or allow the gobo to warm up.
G14M	GOBO WHEEL GOBO 4 MISSING The gobo is not installed, faulty, or operating in extremely cold temperatures. Instal, replace or allow the gobo to warm up.
G1ER	GOBO WHEEL ERROR
GELF	GENERATE EVENT LOG FAILED
GOER	GOBO WHEEL ERROR The sensors, wiring and motor need to be checked and the driver PCB may need to be replaced.
HOT	LAMP TOO HOT TO RESTRIKE The fixture will attempt to restrike at 20 second intervals. After 90 seconds if the lamp still refuses to strike, LERR is displayed
HT W	HEAD TEMPERATURE TOO HIGH One or more of the PCB's in the head is above 85 degrees celsius. Power off the fixture, allow it to cool, and restart.
HTCO	HEAD TEMP CUT OFF One or more of the PCB's in the head is above 95 degrees celsius. Power off the fixture, allow it to cool, and restart.
HTER	HEAD TEMP HIGH The temperature on a PCB in the head is high. A fan might be defective or the ambient temperature may be too high.
IRER	IRIS ERROR
LAER	LAMP ERROR The lamp is defective or has exploded, is missing, or the lamp cannot restrike after 90 seconds.
LSER	LAMP SENSING CIRCUIT ERROR (s/w versions from ver. 1.3) Lamp sensing circuit reports that lamp should be on but is not actually on.
LSRR	LAMP SENSING CIRCUIT ERROR (s/w versions prior to ver. 1.3) Lamp sensing circuit reports that lamp should be on but is not actually on.
LTIM	LAMP LIFE WARNING Lamp on counter has timed out and it is time to change the lamp. The counter must be reset once this is done.
MAER	MAGENTA ERROR
MALE	MAINS LOW The input voltage on the electronic ballast is too low to strike the lamp.
MALW	MAINS LOW Mains voltage is below acceptable level. The lamp may not be able to strike.
PAER	PAN ERROR
PANA	PAN NOT ADJUSTED Pan needs to be adjusted by a qualified service technician.
PCDE	PAN/TILT CALIBRATE DATA PCB (s/w versions prior to ver. 1.3) Unable to read/write data to external EEPROM board (calibrate date) on yoke

Table 5: Error messages

Short code	Full-text message
PSER	PAN SENSOR ERROR
PTCM	PAN/TILT SENSOR CAL MISSING The pan/tilt sensors are not calibrated.
PTCO	PSU TEMP CUTOFF Ballast in thermal cutoff
PTCS	PAN/TILT CALIBRATE SENSOR (s/w versions prior to ver. 1.3) Pan/tilt sensors not calibrated
PTER	PSU TEMP HIGH The temperature on a PCB in the power supply unit or ballast is high. A fan might be defective or the ambient temperature may be too high.
R1ER	GOBO WHEEL ROTATION ERROR
SHNA	SHUTTER NOT ADJUSTED No shutter adjustment data in EEPROM
SHUE	SHUTTER ERROR
SLER	SAFETY LOOP ERROR Lamp safety loop circuit activated: the lamp access hatch is open or lamp is too hot
SSTO	SYSTEM STATE TIMEOUT Failure to communicate with module during self-check at startup. Service intervention required. Fixture control possibly disabled, depending on nature of error.
TIER	TILT ERROR
TINA	TILT NOT ADJUSTED Tilt needs to be adjusted by a qualified service technician.
TSER	TILT SENSOR ERROR
UECH	UPLOAD ERROR CHARGER Could not upload new firmware to the Charger module.
UECM	UPLOAD ERROR CMY Could not upload new firmware to the CMY module.
UECO	UPLOAD ERROR COOLING Could not upload new firmware to the Cooling module.
UEEF	UPLOAD ERROR EFFECT Could not upload new firmware to the Effects module.
UEPT	UPLOAD ERROR PAN/TILT Could not upload new firmware to the Pan/Tilt Focus module.
UEPU	UPLOAD ERROR POWER UNIT Could not upload new firmware to the Power Unit module.
UEUI	UPLOAD ERROR UI Could not upload new firmware to the User Interface module.
UEZF	UPLOAD ERROR ZOOM/FOCUS Could not upload new firmware to the Zoom Focus module.
UPLB	UPLOAD ERROR ON BALLAST (s/w versions prior to ver. 1.3)
UPLC	UPLOAD ERROR ON COOLING (s/w versions prior to ver. 1.3)
UPLD	DMX UPLOAD ERROR An error occurred during upload via DMX. Check cabling and connections, and then restart.
UPLD	DMX UPLOAD ERROR Firmware upload via DMX failed.
UPLE	UPLOAD ERROR ON EFFECT (s/w versions prior to ver. 1.3)

Table 5: Error messages

Troubleshooting

Problem	Probable cause(s)	Remedy
One or more of the fixtures is completely dead.	No power to fixture.	Check that power is switched on and cables are plugged in.
	Primary fuse blown (located near mains inlet).	Isolate fixture from power and replace fuse.
	Secondary fuse(s) blown (located on PCBs in base).	Isolate fixture from power. Check fuses and replace.
Fixtures reset correctly but respond erratically or not at all to the controller.	Bad data link.	Inspect connections and cables. Correct poor connections. Repair or replace damaged cables.
	Data link not terminated.	Insert DMX termination plug in data output socket of the last MAC III AirFX on the data link.
	Incorrect addressing of fixtures.	Check fixture address and protocol settings.
	One of the fixtures is defective and disturbs data transmission on the link.	Unplug the XLR in and out connectors and connect them directly together to bypass one fixture at a time until normal operation is regained. Have the fixture serviced by a qualified technician.
Time out error after fixture reset.	Effect requires mechanical adjustment.	Contact Martin technician for service.
Mechanical effect loses position.	Mechanical train requires cleaning, adjustment, or lubrication.	Contact Martin technician for service.
No light and lamp error message displayed.	Lamp blown	Disconnect fixture and replace lamp.
	Lamp not installed	Disconnect fixture and install lamp.
	Lamp access door safety switch open	Verify that lamp access door is fully seated and locked in place.
Lamp cuts out intermittently.	Fixture is too hot.	Allow fixture to cool. Clean fixture. Reduce ambient temperature.

Table 6: Troubleshooting

Specifications

Physical

Length	712 mm (28.0 in.)
Width	536 mm (21.1 in.)
Height (head straight up)	936 mm (36.9 in.)
Weight	54.9 kg (121.0 lbs.)

Lamp

Type	1500 W discharge
Color temperature	6000 K
CRI (Color rendering index)	>90
Average lifetime	750 hours
Hot restrike	Semi-hot (under 90 seconds)
Socket:	PGJ50
Ballast	Electronic

Dynamic Effects

Color mixing	CMY, independently variable 0 - 100%
Color temperature control	CTO, variable 6000 - 3200 K
Color wheel	7 interchangeable dichroic filters + open, indexing, continuous rotation, random color
Rotating aerial effects	Wheel with 4 interchangeable rotating aerial effects, effect indexing, continuous rotation and shake
Wash effect	Fade in/fade out
Iris	0 - 100%, pulse effects
Mechanical dimmer	0 - 100%
Mechanical shutter	Strobe and pulse effects, instant open and blackout
Focus	2 m (approx.) to infinity
Zoom	Motorized
Pan	540°
Tilt	268°
Position correction system	Absolute position monitoring

Control and programming

DMX channels	22
Setting and addressing	Control panel with backlit graphic display
16-bit control	Aerial effect indexing and rotation speed, dimmer, pan and tilt
DMX compliance	USITT DMX512-A
RDM compliance	ANSI/ESTA E1.20
Receiver	Opto-isolated RS-485
Firmware update	USB memory device or USB/DMX hardware interface

Service utilities

Fixture identification	Four-digit user-settable ID number

Construction

Color	Black
Housing	Magnesium alloy, UV-resistant fiber-reinforced composite
Reflector	Glass, cold light
Protection rating	IP20

Gobos

Size	Custom D47-d36
Outside diameter	47 mm (1.850 in.) +0/- 0.2 mm (0.008 in.)
Maximum image diameter	36 mm (1.417 in.) +/- 0.3 mm (0.012 in.)
Maximum thickness	1.1 mm (0.043 in.) +/- 0.1 mm (0.004 in.)
Recommended glass	Borosilicate 3.3 or better with dichroic or heavy matted aluminum coating

Installation

Mounting points	2 pairs of 1/4-turn locks
Orientation	Any
Minimum distance from illuminated surface	2.5 m (100 in.)
Minimum distance from combustible materials	0.2 m (8 in.)

Connections

AC power input	Neutrik PowerCon
DMX and RDM data in/out	5-pin locking XLR
Ethernet (Artnet II compatible, ACN-ready)	Neutrik RJ-45 socket (accepts Neutrik EtherCon connectors in housing)
USB devices (including USB memory storage)	USB host socket
Future USB options	USB device socket

Electrical

AC power	200-240 V nominal, 50/60 Hz
Power supply unit	Auto-ranging electronic switch-mode
Main fuse for 200 - 240 V power	16 AT (x 2)

Typical power and current

200 V, 50 Hz	1801 W, 9.0 A, PF 0.996
200 V, 60 Hz	1805 W, 9.1 A, PF 0.995
208 V, 60 Hz	1802 W, 8.8 A, PF 0.994
220 V, 50 Hz	1788 W, 8.2 A, PF 0.994
230 V, 50 Hz	1783 W, 7.8 A, PF 0.993
240 V, 50 Hz	1779 W, 7.5 A, PF 0.989
240 V, 60 Hz	1786 W, 7.5 A, PF 0.987

Measurements made at nominal voltage. Allow for a deviation of +/- 10%.
PF = power factor

Thermal

Maximum ambient temperature (T_a)	40° C (104° F)
Maximum surface temperature, steady state, T_a = 40° C	170° C (338° F)
Cooling	Filtered forced air (temperature-regulated, low noise)
Total heat dissipation (calculated, +/- 10% at 200 V, 60 Hz)	6160 BTU/hr

Approvals

CE

EU EMC	EN 55 103-1, EN 55 015, EN 61 547
EU safety	EN 60598-2-17
US safety (pending)	ANSI/UL 1573
Canadian safety (pending)	CAN/CSA-E60598-1, CAN/CSA-E598-2-17

Included items

Osram Lok-it HTI 1500W/60/P50 - 7mm discharge lamp (installed)	P/N 97010348
2 omega clamp attachment brackets with quarter-turn fasteners	2 x P/N 91602001
User manual	P/N 35000265

Accessories

Power cable, AWG12, SJT, with Neutrik PowerCon NAC3FCA input connector, 3 m	P/N 11541503
Neutrik PowerCon NAC3FCA power input connector, cable mount, blue	P/N 05342804
Half-coupler clamp	P/N 91602005
G-clamp (suspension with yoke vertically downwards only)	P/N 91602003
Quick-trigger clamp (suspension with yoke vertically downwards only)	P/N 91602007
Omega clamp attachment bracket with 1/4-turn fasteners	P/N 91602001
T-shaped omega clamp attachment bracket with 1/4-turn fasteners	P/N 91602008
Swing-wing truss mounting plate with half-couplers	P/N 91602010
Super Truss 20.5" mounting plate with half-couplers	P/N 91602014
Safety wire, 70 kg SWL	P/N 91604004
Flightcase for 1 x MAC III	P/N 91510080

Spare parts

Base air filter, short . . . . . P/N 20800220
Base air filter, long . . . . . P/N 20800230
Head air filter . . . . . P/N 20800240
16 AT (slow blow) fuse . . . . . P/N 05020047

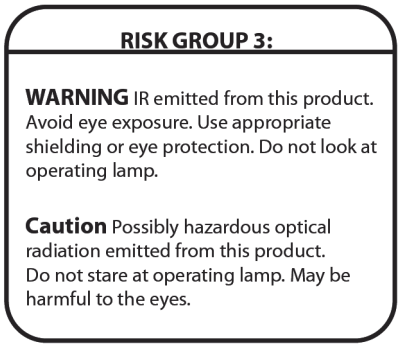
Related Items

Martin USB Duo™ DMX Interface Box . . . . . P/N 90703010
Martin RDM 5.5 Splitter™ . . . . . P/N 90758150

Ordering information

MAC III AirFX in cardboard packing case . . . . . P/N 90206500
MAC III AirFX in flightcase . . . . . P/N 90206510

Specifications subject to change without notice. For the latest product specifications, see www.martin.com


RISK GROUP 3:
WARNING IR emitted from this product. Avoid eye exposure. Use appropriate shielding or eye protection. Do not look at operating lamp.
Caution Possibly hazardous optical radiation emitted from this product. Do not stare at operating lamp. May be harmful to the eyes.

Photobiological Safety Warning

The label shown on the left is displayed on this product. If it becomes difficult or impossible to read, it must be replaced using the illustration on the left to reproduce a new label.

FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Interference-Causing Equipment Regulations - *Règlement sur le Matériel Brouilleur du Canada*

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le Matériel Brouilleur du Canada.

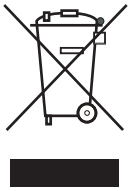
Intellectual Property Rights

MAC III™ products are covered by one or more of these patents: CN100567808; CN101430070; CN101430073; CN101430075; CN101430080; CN101435554; CZ17567; EP1234197; EP1747399; EP2112431; EP2113714; EP2117284; US6241366; US6601973; US6687063; US6971770; US7222997; US7498756; US7559676; US7654693; US7703948; US7789525; US7789533; US7789543; US7905630; US7942535; US7954981; US7990673;

and/or one or more of these patent applications: CN101430074; CN101430076; CN102155731; CN102460001; CN102483218; CN102483219; DKPA201270221; EP2058586; EP2091302; EP2103864; EP2133626; EP2136136; EP2146141; EP2326150; EP2443381; EP2475931; EP2475932; US20120218767; US13/378,184; US13/394,939;

and/or one or more of these designs: CN300993074; CN301014852; CN301022860; CN301063459; EU000918891; USD612532; USD614344; USD618377; USD638573;

and/or one or more other intellectual property rights, including one or more intellectual property rights listed on www.martin.com/ipr



Disposing of this product

Martin™ products are supplied in compliance with Directive 2002/96/EC of the European Parliament and of the Council of the European Union on WEEE (Waste Electrical and Electronic Equipment), as amended by Directive 2003/108/EC, where applicable.

Help preserve the environment! Ensure that this product is recycled at the end of its life. Your supplier can give details of local arrangements for the disposal of Martin products.

This product contains two batteries. Ensure that they are disposed of responsibly by an authorized recycling or waste disposal center at the end of their life. Where applicable, Martin participates in schemes whose aim is to ensure that local recycling and/or waste disposal centers accept batteries from Martin products.

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